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ENGINEERING NEWS-RECORD

APRIL 30, 1959

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CONTENTS ON PAGE 17

77 Top Contractors

They all made the $25-million club in 1958 page 21

117 Oldest Contractors

They've survived from 40 to 140 years page 30

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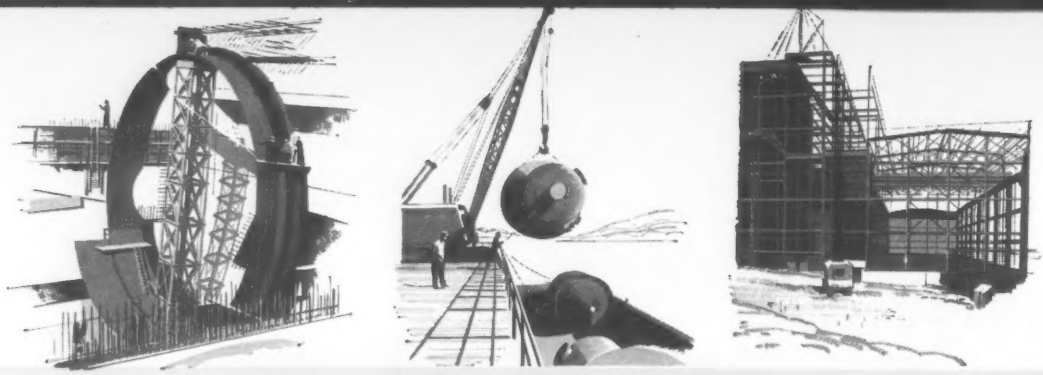

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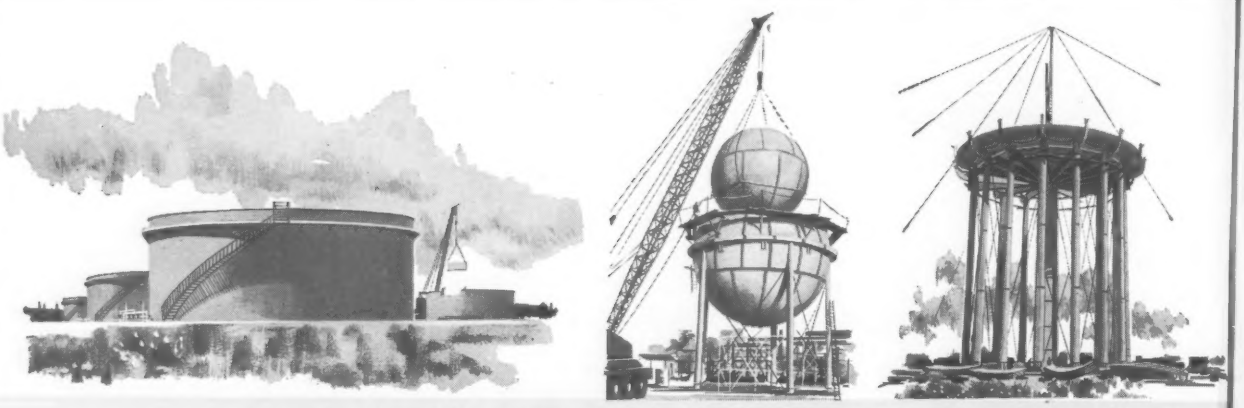

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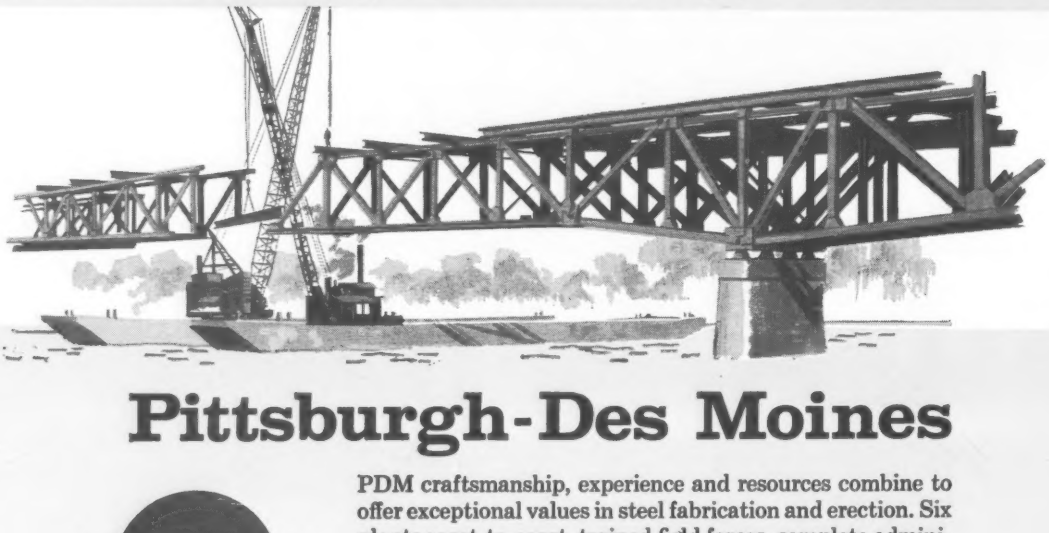

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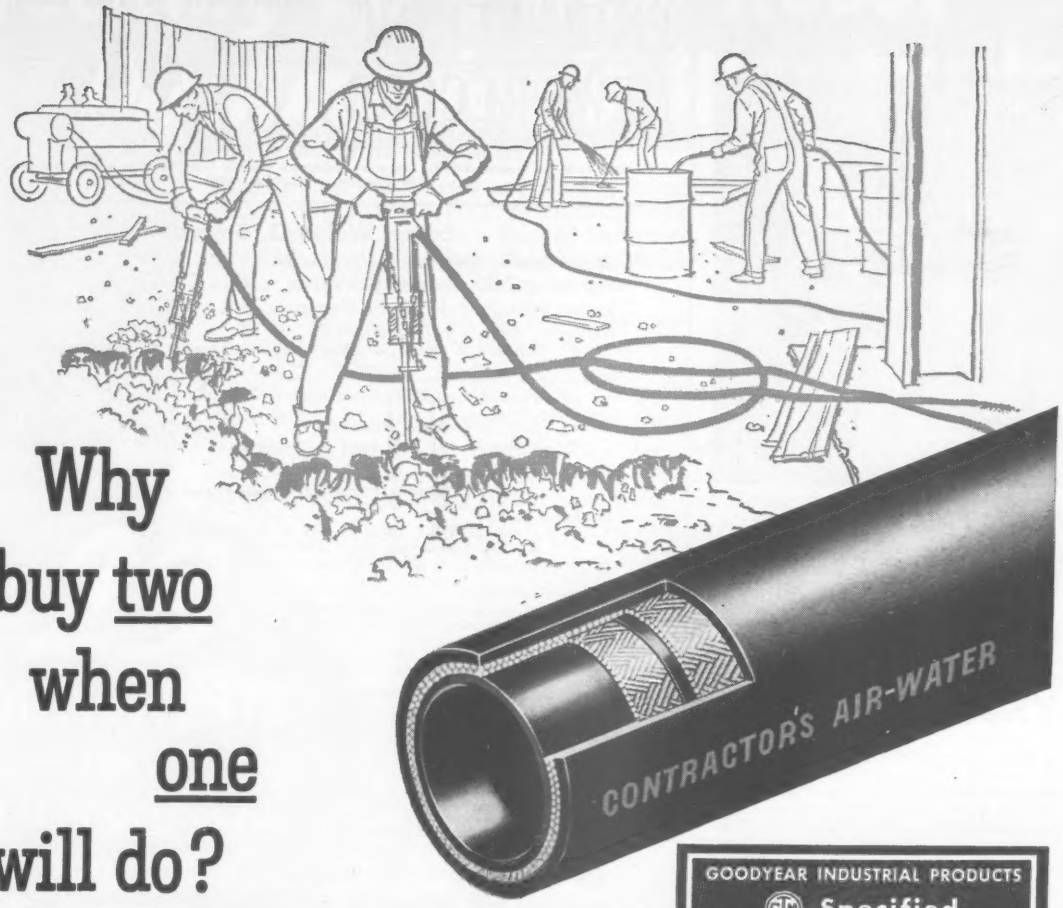

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Here's one hose that can handle practically every air or water assignment on any kind of construction job.

It was designed by the G.T.M. – Goodyear Technical Man – and his colleagues for air pressures up to 200 psi. Or it's an ideal water hose for filling, supplying or wash-down service.

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IT'S SMART TO DO BUSINESS *with your Goodyear Distributor. He can give you fast, dependable service on Hose, V-Belts, Flat Belts and many other industrial rubber and nonrubber supplies. Look for him in the Yellow Pages under "Rubber Goods" or "Rubber Products."*

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Contractor's Air-Water Hose for Construction Work

A Rugged cover that's both abrasion- and sun-resisting — continuously printed branded for easy identification

B Extra-tough braids of high-tensile rayon cord to handle pressures, resist crushing or kinking

C Special nonporous tube resists alkali or slightly acid water

the big name in hose is

GOODYEAR

THE GREATEST NAME IN RUBBER

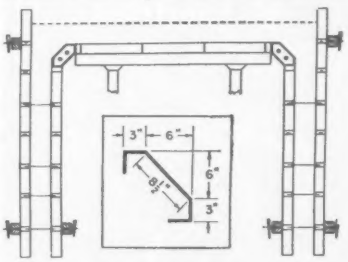
Job Finished 3 Weeks

How to Pour a Tunnel in a Hurry...

Symons Culvert Forms The Answer

When awarded a contract to build a 340 ft. tunnel, Schweiger Construction Company, Kansas City, Mo., faced the problem of how to do it fast and as economically as possible.

Symons Culvert Forms solved the problem. They eliminated the need for any special form or job-built construction.



Schweiger used Symons 1" steel channel filler horizontally on top of 6' vertical panels on the inside of the walls. Culvert Forms were placed on top of this filler. The forms underneath were stripped with no difficulty and the fillers and culvert forms were then removed without disturbing the decking for the slab, which was left in place for an additional curing period. Walls and top slab were poured monolithically in three pours. *Job was completed in three weeks.*

Symons forms, shores and column clamps may be rented with purchase option. Additional information on *Symons Culvert Forms* is available upon request.

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EIGHTY-FIFTH YEAR OF PUBLICATION

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Feeding four 34E Pavers and putting down 2900 linear feet of 14 to 18 inch slab a day takes a smooth running outfit. That was the problem of C. J. Langenfelder & Son, Inc., of Baltimore, Md., on the Olmsted Air Base at Middletown, Pa. Three Northwest Model 6 Cranes kept the paving train on the jump to produce this big output.

C. J. Langenfelder is an old Northwest user. Over the years he has bought 23 Northwest Machines. That is 22 repeat orders that speak more effectively than any language as to the quality of operation you can expect from Northwest equipment. One out of every three Northwests sold is a repeat order in the hands of a responsible contractor.

Northwests are money makers. They are always ready to go. *We hear it everywhere and Northwest users will tell you so.* There are new improvements to tell you about. Let a Northwest man bring you up-to-date.

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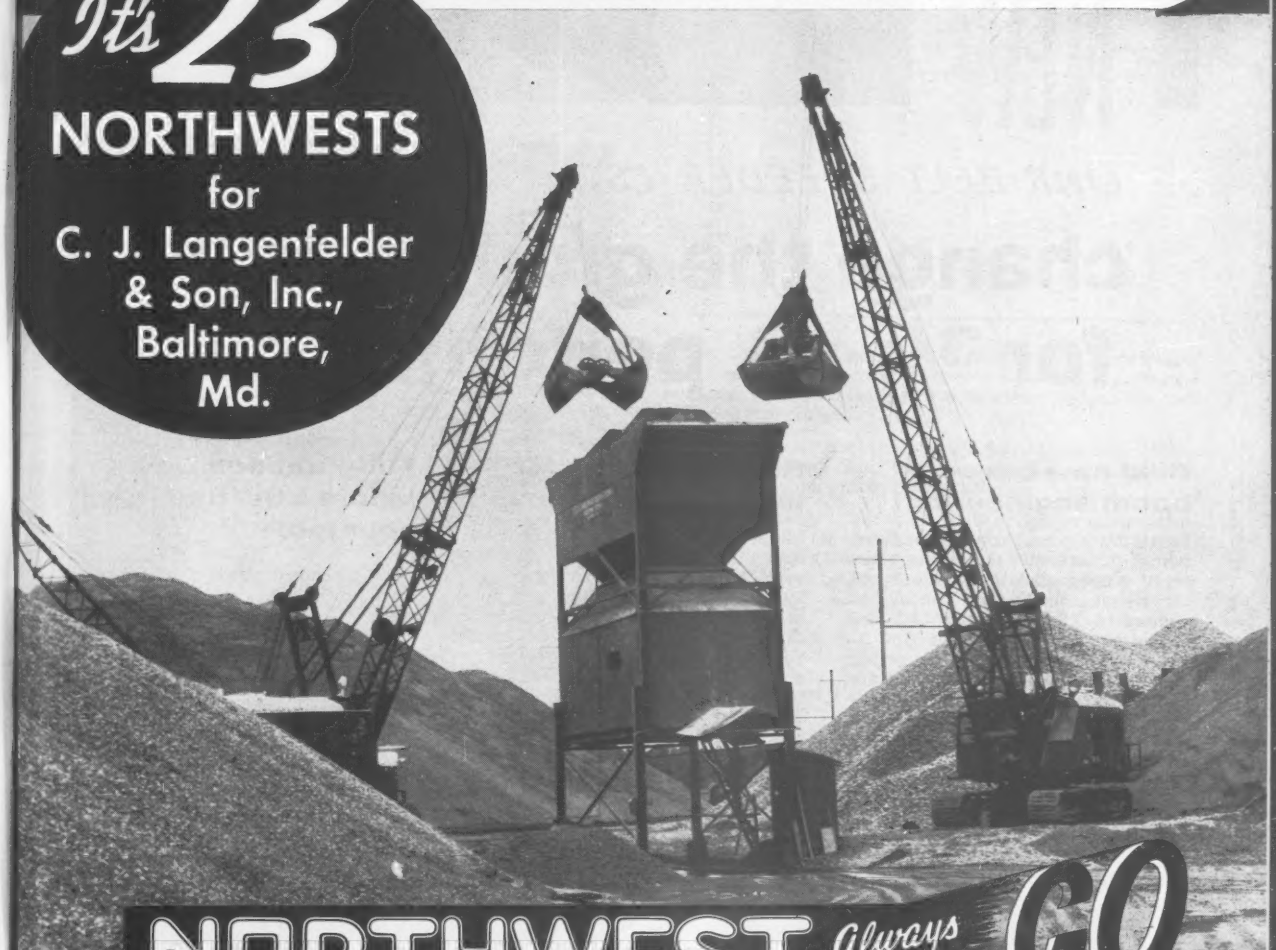
It's 23 NORTHWESTS for C. J. Langenfelder & Son, Inc., Baltimore, Md.



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LINK-BELT SPEEDER LS-78 SHOVEL-CRANES

change the ground rules for 3/4-yd. performance !

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Power controls for the man-in-command

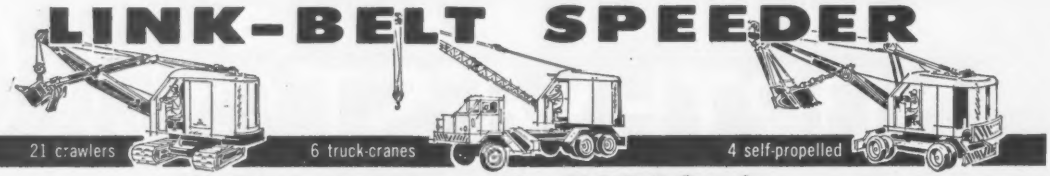
LS-78's exclusive Speed-o-Matic power hydraulic controls quicken cycles (up to 25%) spurt output, side-step operator fatigue. Split-control stand gives unobstructed vision of below-grade excavating. Flick-of-the-wrist levers trigger instantaneous, oil-smooth response. No jump, jerk or lag. From start-up to shut-down, your man-in-command stays mid-morning fresh. He's encouraged to push the LS-78 to its highest productive peak!

Full-Function Design tailors LS-78 to your job!

An independent power flow for each machine function . . . bridges all restrictions of non-independent power trains. It offers more exclusive standard features, a wider choice of optional features that can be operated *simultaneously* without restricting *any other* function. Factory or field-install function-adding features you need anytime . . . today, tomorrow, next year. 15.145

For details and fact-finding catalog write: Link-Belt Speeder Corp., Cedar Rapids, Iowa

LINK-BELT SPEEDER



It's time to compare . . . with a Link-Belt Speeder

Amvit VITRIFIED CLAY LINER PLATES

protect concrete structures from disintegration

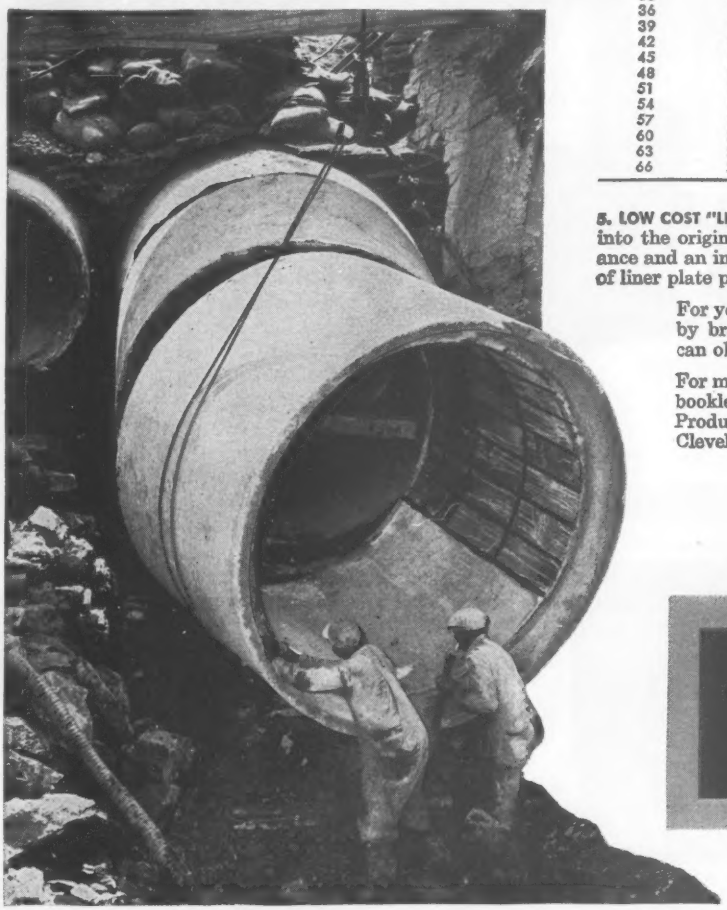
CLAY LINER PLATES ARE UNAFFECTED BY EROSION, ABRASION OR CORROSIVE ACIDS OR GASES

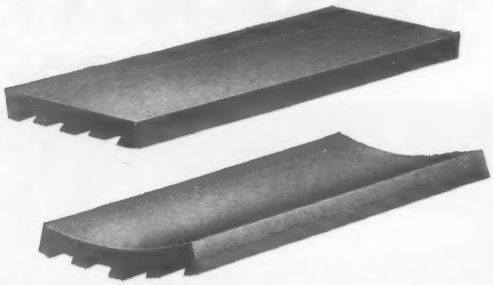
For complete protection of concrete pipe sewers, industrial sewers, acid vats, sewage treatment tanks, neutralizing baths, culverts, retaining walls, and bridges use Amvit clay liner plates for these five big reasons:

1. RESISTS ACID ATTACK — Amvit Liner plates are specially manufactured to meet all application requirements which entail resistance to acids, alkalies, and chemical reaction. They are made of the same high grade clays that go into famous Amvit sewer pipe. They are formed, dried, and vitrified to obtain clay pipe density and hardness.

2. PREVENTS ABRASION — Amvit Liner plates are not affected by the wearing action of sand, rocks, gravel, or other solids often encountered in streams and rivers. They protect all surfaces against corrosion and abrasion.

3. EASY INSTALLATION — Amvit Clay Liner Plates, hardened, glazed, and durable, permanently bond and lock to masonry and concrete work. They are easily installed on concrete forms and are sized according to standardized specifications for uniform spacing.





4. SIZES FOR EVERY JOB — To meet the applications of liner plates in industry, sewerage, and drainage, they are manufactured flat or curved, in 24-inch lengths, 9 inches wide. Lengths under 24 inches for special applications are available on request.

STANDARDS FOR CURVED LINER PLATES

Diameter Sewer	Pieces Required For Circle	Radius	Diameter Sewer	Pieces Required For Circle	Radius
Inches	Number	Inches	Inches	Number	Inches
24	8	12	69	23	33
27	9	13½	72	24	33
30	10	16½	78	26	45
33	11	16½	84	28	45
36	12	18	90	30	45
39	13	21	96	32	45
42	14	21	102	34	45
45	15	21	108	36	60
48	16	24	114	38	60
51	17	26¼	120	40	60
54	18	26¼	126	42	60
57	19	26¼	132	44	60
60	20	33	138	46	60
63	21	33	144	48	72
66	22	33			

5. LOW COST "LIFE INSURANCE" — Building Amvit Liner Plates into the original structure assures a reduction in maintenance and an increase in life expectancy far beyond the cost of liner plate protection.

For your next job, specify *Amvit Clay Liner Plates* by brand. Your local concrete pipe manufacturer can obtain them on short notice.

For more information, write or call for our detailed booklet on Amvit Liner Plates. American Vitrified Products Company, National City Bank Building, Cleveland, Ohio, or our office nearest you.

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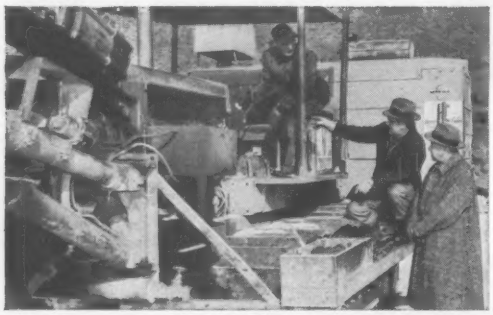

Phillips (left) and Morgan (center) show Williamson how planned lubrication prevented equipment breakdowns.

Williamson (left) and Morgan go over important lubricating points of truck used on Dyberry job.

Winter Shutdown!

Mobil PM System Given Credit by Hunkin-Conkey for Helping Speed Up Dyberry Flood Control Dam and Reservoir Project of U. S. Army Corps of Engineers

WHEN Hunkin-Conkey Construction Company, Cleveland, O., closed down operations for the winter at the Dyberry Flood Control Dam and Reservoir near Honesdale, Pa., it was 11% ahead of job schedule. Exclusive use of the Mobil PM System and Mobil products, resulting in better maintenance organization and performance, is given a large share of the credit for this fast progress by Frank S. Morgan, Hunkin-Conkey's General Superintendent on the Dyberry job.

Major equipment in use at the Honesdale project includes 12 Euclid trucks, seven bulldozers, three mixer trucks, two tractor-mounted drill rigs, two 2½-yard shovels and a one-yard drag-line. Planned lubrication made possible the steady, day-after-day availability of this equipment—an important factor in helping Hunkin-Conkey keep ahead of schedule.

This case history clearly demonstrates the practical value of Mobil's PM System and Mobil products for contractors in saving valuable job time . . . boosting job profits . . . and in keeping their equipment working on the job *all through the job!*

R. G. Williamson, local Socony Mobil representative (center), checks Mobil PM System equipment sheet with General Superintendent Frank S. Morgan and Equipment Superintendent L. C. "Joe" Phillips.

Available—film on equipment safety, maintenance. Call nearest Socony Mobil office.

CONTRACTOR PM SYSTEM INCLUDES:

1. **Record Folder**—provides identifying date for each separate piece of equipment and holds equipment records.
2. **Operator's Recommendation Chart**—lists the correct lubrication recommendations for each piece of equipment.
3. **Weekly Service & Inspection Report**—an up-to-date record of condition of equipment, work to be done or completed.
4. **Delivery Ticket**—lists petroleum supplies delivered to equipment on the job.
5. **"Squawk" Sheet**—used by equipment operator to point out trouble spots that may need immediate attention.

Mobil

Correct Lubrication

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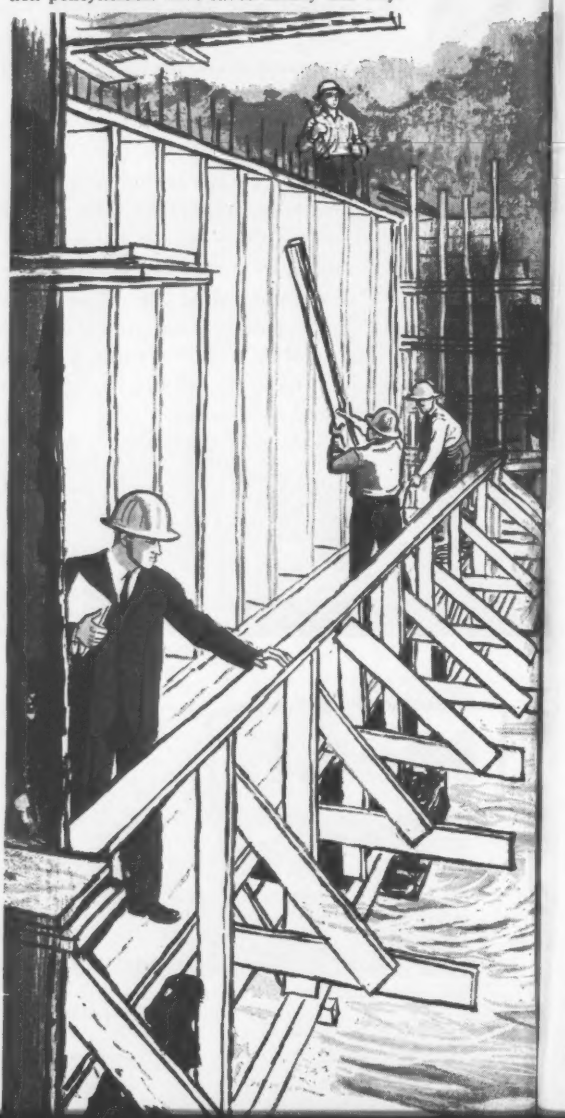
How safety engineering pays off. By checking for hazards on every phase of your job, Liberty's construction safety engineers can help you cut compensation costs. Hundreds of our construction policyholders have saved money this way.



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Reader Comment

'End-Result' Specs

SIR—This letter is written to provide an answer, and to register violent exception to the attitude taken by M. Clare Miller of the AGC regarding "better inspection" as discussed in an editorial (ENR Mar. 26, p. 112). Having been a contractor's sperintendent and a resident engineer for architects and railroads for more years than I care to mention, I believe that I am in a position to speak for both sides of the house.

The fallacies in Mr. Miller's "end result" inspection and specifications for highway or any other type construction should be apparent. I agree that many young inspectors, without sufficient experience in construction, are sent into the field, and at times became unreasonable due to lack of knowledge. I also agree that many highway and all other specifications contain clauses and phrases impossible to maintain, due to local conditions, poor writing, etc. But the gist of the whole matter is that a contractor is out to make as much on a job as he can; believe me, I know.

Most superintendents will short-cut as much as possible to keep their job out of the red. This is only human and is not an indictment of any of them.

Likewise, the "honesty" policies of contractors vary widely; the "end result" policy of inspection may have excellent results with one contractor, but be disastrous in a few years with others. Policing on individual operations then becomes a necessity; annoying to the good contractors, but necessary because of the few who will do anything to get a job built and to get their money. If Mr. Miller can refute any of the above statements, I shall be glad to make apologies. In the meantime, the "end result" inspection will—I guarantee him—remain in the category of a disarmament agreement with Soviet Russia—unlikely to work.

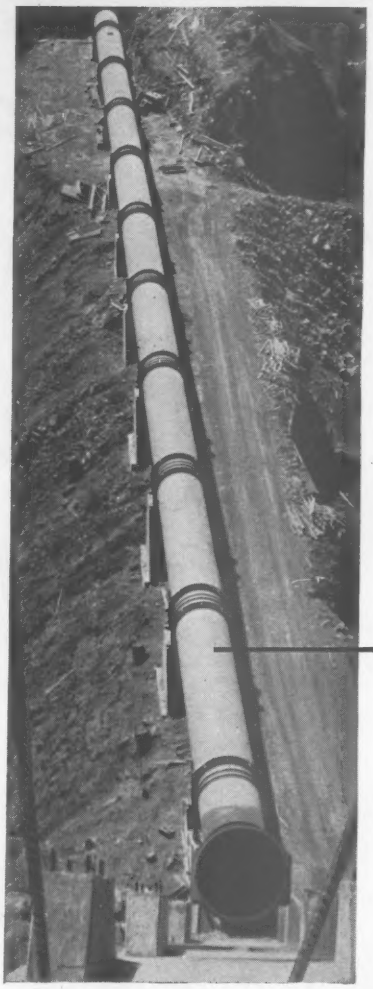
KENNETH H. WRIGHT
Independence, Mo.

Bid Shopping

SIR—On April 9, page 9, ENR carried a letter from George B. Roscoe, Director of Public Relations, National Electrical Contractors Association, regarding statements made by ENR, Jan. 29, p. 77 on bid shopping.

(*Reader Comment continued p* 12)

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.



Each Dresser Coupling is engineered to meet the pressure at each portion of the penstock

CALIFORNIA-OREGON POWER COMPANY... another 100% Dresser-Coupled penstock

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If you'd like to see technical data on a number of other Dresser-Coupled penstock installations, write for illustrated brochure. Before you draw up specifications, make sure you have all the facts on steel pipe joined with Dresser Couplings.

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OPEN TO ALL: Engineering undergraduates and graduate students, faculty, and practicing engineers. This competition invites papers which will promote ingenuity, originality, and research in the field of foundation engineering as related to the *foundations of structures*. Any aspect of this broad field, theory or practice, is a fit subject. Deadline for all papers is September 1, 1959.

THE JUDGES E. A. DOCKSTADER, Consulting Engineer, West Newton, Massachusetts.

WILLIAM W. MOORE, Partner, Dames & Moore, Consulting Engineers, San Francisco, California.

RALPH B. PECK, Professor of Foundation Engineering, University of Illinois, Urbana, Illinois.

"These awards by Raymond International Inc., are a step in the right direction. By lending encouragement to research in the foundation field, they can stimulate interest in civil engineering research generally. More of it must be done if the art of construction is to advance."

—Waldo G. Bowman, Editor, Engineering News Record, December 25, 1958.

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ANOTHER EXAMPLE OF HOW Fenwal CONTROLS TEMPERATURE . . . PRECISELY

. . . Reader Comment

Mr. Roscoe describes as untrue your statement, "In their fight for separate contracts, plumbers and other subcontracting groups have been . . . opposed by a coalition of the Associated General Contractors of America and mechanical specialty contractor groups."

Mr. Roscoe claims that his Council of Mechanical Specialty Contracting Industries has never joined with the AGC in opposing separate contract legislation nationally.

Mr. Roscoe seems to forget that the Council of Mechanical Speciality Contracting Industries, of which he is the director and of which the NECA is a member, spent over $100,000 lobbying for the passage of H.R. 7168, 85th Congress.

The preamble of H.R. 7168 called for a single contract system of procurement.

This seems to prove that Engineering News-Record was correct in its statement in the January 29 article.

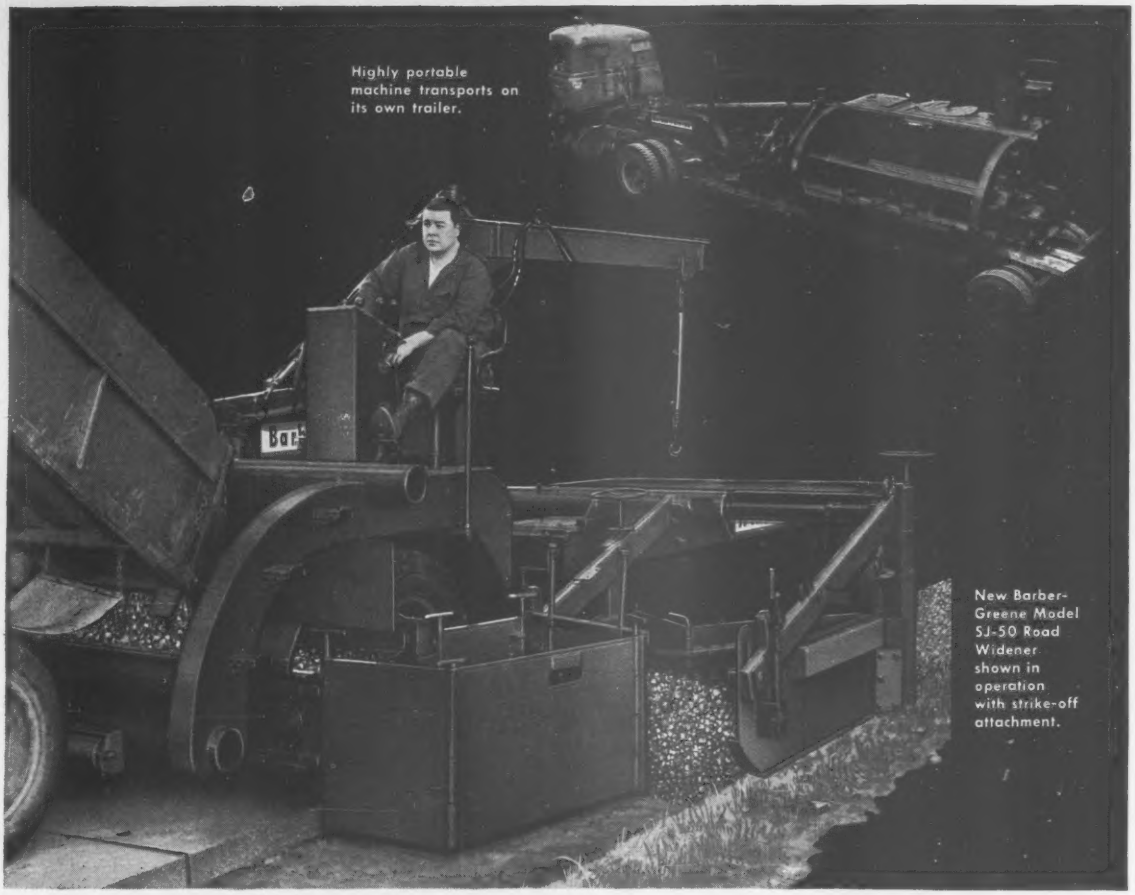
It is definitely true that the Plumbers (NAPC) and nine other national associations of specialty contractors joined together to oppose H.R. 7168 through the formation of the Specialty Contracting Committee, of which the writer is chairman.

If Mr. Roscoe believes in the separate contract system, why did his Mechanical Council spend so much money trying to get legislation passed that supported the single contract system?

JOE M. BAKER, JR.
Executive Secretary
Contracting Plasters' and Lathers' International Association

For Your Calendar . . .

Maintenance and Plant Engineering, National Conference, Edgewater Beach Hotel, Chicago, Ill., May 4-5.
American Society of Civil Engineers Summer Convention, Sheraton-Cleveland Hotel, Cleveland, Ohio. May 4-8.
Purdue Industrial Waste Conference, Purdue University, Lafayette, Ind., May 5-7.
American Society of Planning Officials, National Planning Conference, Leamington Hotel, Minneapolis, Minn., May 10-14.
International Commission on Irrigation and Drainage Technical Conference, Reno, Nev., May 11-12.
Symposium on Industrial Uses of Radioisotopes, Georgia Institute of Technology, Atlanta, Ga., May 11-12.
46th Annual Convention of the National Rivers and Harbors Congress, Mayflower Hotel, Washington, D. C., May 13-14.
American Concrete Agricultural Pipe Association, Brown Palace Hotel, Denver, Colo., May 13-15.
Building Research Institute Conference on Building Illumination, Statler-Hilton Hotel, Cleveland, Ohio, May 20-21.
Jet Airport Conference of ASCE Air Transport Division, Shamrock-Hilton Hotel, Houston, Tex., May 20-22.
Design Engineering Show, Convention Hall, Philadelphia, Pa., May 25-29.
Wire Reinforcement Institute Annual Spring Meeting, the Greenbrier, White Sulphur Springs, W. Va., May 25-26.
Concrete Reinforcing Steel Institute, Annual Meeting, the Greenbrier, White Sulphur Springs, W. Va., May 25-30.
Southern Research Institute Conference, Birmingham, Ala., June 11-12.
National Society of Professional Engineers, Annual Meeting, Commodore Hotel, New York City, June 17-20.
American Society for Testing Materials, Annual Meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., June 21-26.


Highly portable machine transports on its own trailer.
New Barber-Greene Model SJ-50 Road Widener shown in operation with strike-off attachment.

New Barber-Greene approach to road widening and shoulder paving

The new Barber-Greene Road Widener is a completely new solution to road-widening problems—a machine that lays all materials . . . handles all road-widening jobs.

These exclusive advantages offer a standard of road-widening performance never before available:

New interchangeable attachments — strike-off attachment handles all materials and is hydraulically variable in width while operating. Concrete attachment includes vibrator. Exclusive screed attachment lays all asphalt mixes with Barber-Greene's famous tamping-leveling action. Attachments are hydraulically raised while paving.

New 2-unit design—the machine consists of tractor and trailer. Tractor includes receiving hopper, side discharge conveyor, power and controls. Attachments are mounted on trailer unit, giving long-wheel-base stability and new steering control and accuracy. Hydraulic jib hoist swings attachments to trailer.

New steering principle—hydraulically controlled steering gives unmatched accuracy. Extra long wheel base eliminates side-drag problems. New oscillating push rollers compensate for truck misalignment.

Complete portability—travels over 10 mph. Tractor and attachments ride on trailer for transporting at normal road speeds.

All-hydraulic controls—strike-off width hydraulically adjustable while paving . . . hydraulic steering, brakes, jib hoist, and self-cleaning hopper . . . hopper conveyor controlled hydraulically for both speed and position.

These are just the high spots. Ask for complete details. 59-8-W

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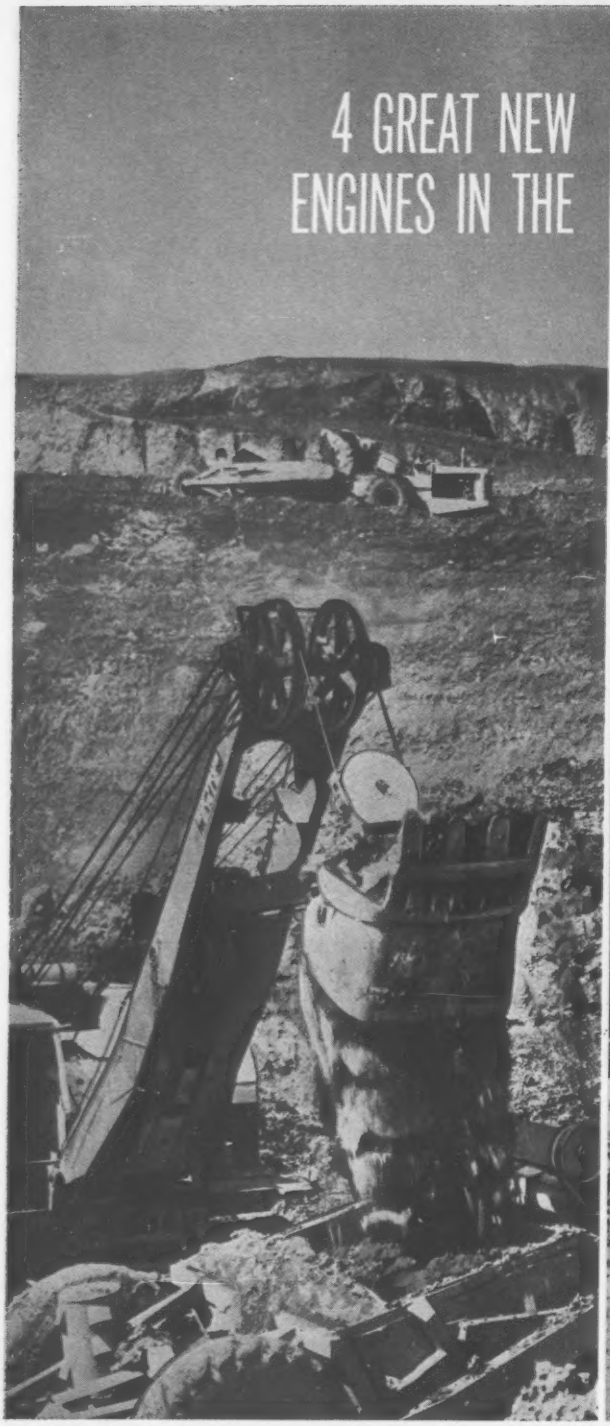
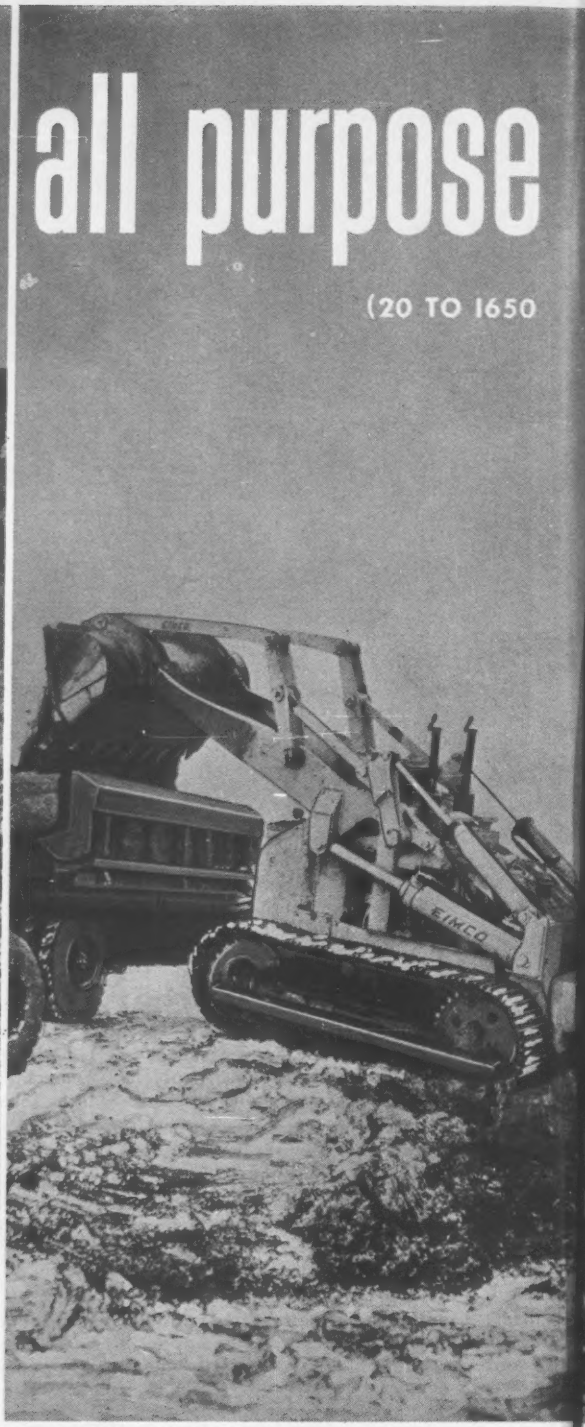
4 GREAT NEW ENGINES IN THE all purpose

(20 TO 1650





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power line

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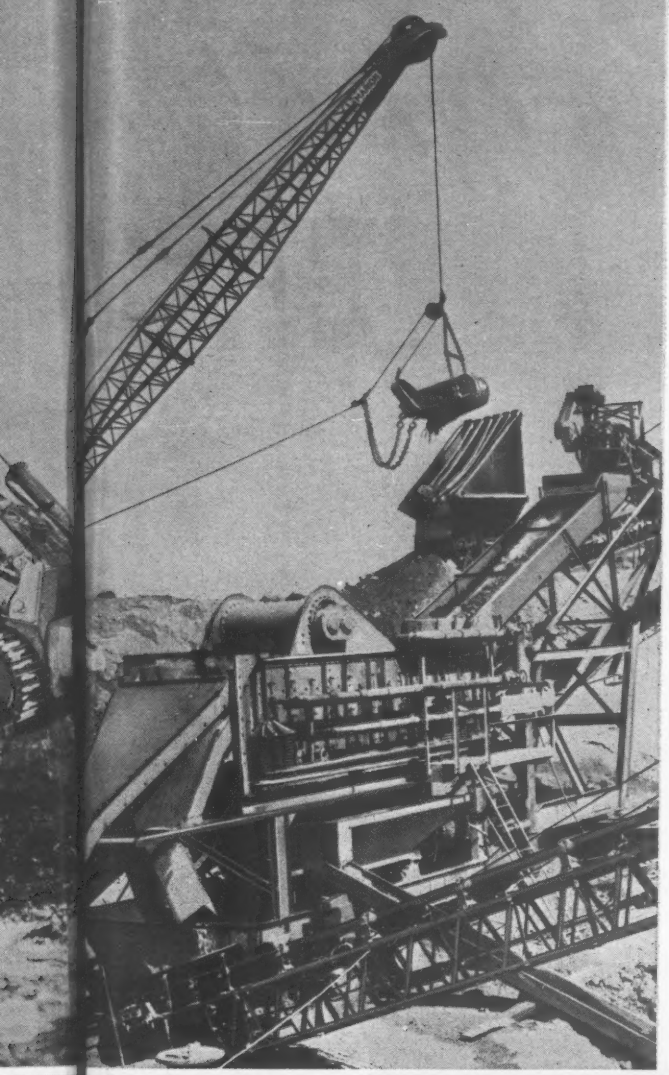

The V-71 "Jimmy" Diesels

NEW FOR THE CONSTRUCTION INDUSTRY

6-, 8-, 12-, and 16-cylinder "V" versions of the famous GM Series 71 Diesel

The new V-71 "Jimmy" Diesels are a further illustration of GM Diesel's mighty new power concept —rounding out the All-Purpose Power Line—yet retaining the GM Diesel family relationship and parts interchangeability.

Here are engines that combine every profit-making, cost-saving advantage any Diesel has ever had. Diesels that boast an ingeniously engineered combination of new compactness, lightweight, high efficiency, durability and inexpensive maintenance.

These V-71 "Jimmy" Diesels are available in 6-, 8-, 12-, and 16-cylinder models rated from 112 to 675 h.p. plus 24- and 32-cylinder "Twins" up to 1650 h.p., when turbocharged. They're itching to get to work wherever there's hard work to be made easy.

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DETROIT DIESEL ENGINE DIVISION,
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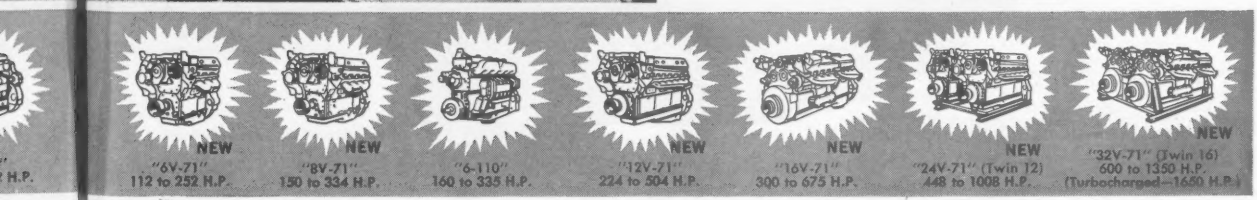

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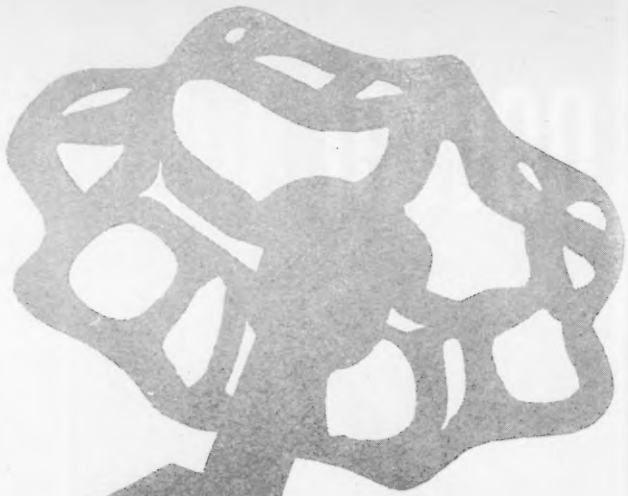

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ENGINEERING NEWS-RECORD

Vol. 162, No. 17 April 30, 1959

Number of copies printed this issue 84,484

CONTENTS

The 10 Top Contractors of 1958..... 21
Bomarc Base-Building Booms..... 24
Inflated Cloth Becomes Dome..... 23
Jobs for the "Little Guy"..... 23
Senate Passes Labor Reform Bill..... 25
Where the Key Bills Stand in Congress..... 26
Floods Trap Sandhogs in Tunnel..... 27
TVA May Get Bond Financing..... 27
Ghana Pushes Power Project..... 28

FEATURES

How "Old Timers" Stayed in Contracting..... 30
Plastic Design Cuts Grocery Bill..... 39
Natural Steam Turns Wheels at Power Plant.. 44

FIELD AND OFFICE

Concrete Barrel Arches Cover School..... 51

NEW PRODUCTS

Two More Concrete Spreaders..... 53
Seven-Wheel Roller Weighs Up to 33 Tons... 53

MEN AND JOBS

Engineer Is San Francisco's Top Appointee.... 57
Saline Water Personnel Is Shifted..... 57
G. H. Henderson Retires From State Service... 57

BUSINESS AND FINANCE

Engineering Firm Gets New Bosses..... 78
Failures Down 3% in Quarter..... 80

LABOR

Featherbedding: Fact and Fancy..... 82

Reader Comment .. 9 Materials Prices ... 58
Calendar ..... 12 Construction Reports 64
Washington Observer 19 Statistics, Indexes .. 76
Editorials 104

Back issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Semiannual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in Industrial Arts Index and Engineering Index.*

THE CONSTRUCTION WEEK

PANAMA BRIDGE BIDS WANTED—Bids are being sought for the substructure of a fixed steel span bridge across the Panama Canal at the Pacific port of Balboa. Contract is estimated at $3 million. Total cost of the bridge is $23 million. The U.S. is the builder. Design is by Sverdrup & Parcel, Inc. of St. Louis.

ELECTRONIC PAYOUT—Georgia's Highway Department credits electronic equipment with some big savings in earthwork design and final-pay quantity computations. Figures are $15.09 and 95 minutes per mile, compared to $105.62 and 56½ hours manually. Fourteen months savings are $229,681 and 140,257 man-hours. On bridge computations, savings add up to $100,000 and the time of 13 engineers.

TRY FOR FIVE?—Contractors ordered a record amount of construction equipment last month. It was the fourth consecutive monthly increase in orders received by manufacturers, who have forecast a record high in sales this year.

THE CLEAN GET CLEANER—Already a city with a reputation for the well scrubbed look, Pittsburgh will soon be even more sparkling. Jones & Laughlin Steel Corp. is going to spend $9 million on equipment to cut out the smoke from its Southside Works—a contributor to what remains of the city's once dreaded smog.

BREAKING THE ICE—Two Canadian icebreakers and several old lakers led the first ocean-going vessels up the St. Lawrence Seaway last week. They entered locks that will eventually lift them 602 ft above sea level and into Lake Superior. Hundreds of ships will have traveled the 185-mile route before President Eisenhower and Queen Elizabeth open the Seaway officially on June 26.

ONE JOB, TWO METHODS—French and Italian contractors will drill their halves of the 7.5-mile Mont Blanc highway tunnel in the Alps by different methods. ENR's article on the job (Mar. 26, p. 30) noted that the Italians were using the so-called Swedish method. In contrast, the French contractors, just announced as Societe des Entreprises de Travaux Publics Andre Borie of Paris, will use heavier equipment much as is generally used in U.S. tunnel driving.

WRECKERS' HORROR—Bulldozers, power shovels, cranes and a 50-man demolition crew have been ramming, digging and hauling at a New York City building for five weeks—and the structure still stands. It's a 74-year-old armory constructed like a medieval Norman fortress and buttressed by several hundred great blocks of Maine granite, more than 500 tons' worth. Demolition is expected to take another four weeks.

BRIXMENT MORTAR

Is Sound — Stays Sound

In these autoclave tests, neat cement bars were exposed to 295 lbs. steam pressure, 420°F., for 3 hours. Left: The two bars are both Brixment. Note that it is sound — it has not expanded. Right: The two bars were made of one part portland cement and one part of a lime which does not meet the autoclave test. Note the expansion — proof of unsoundness.

AND SOUND MORTAR IS ESSENTIAL FOR STRONG, DURABLE MASONRY

Some mortars may contain constituents which can cause them to expand or "grow" after long exposure to weather. Such mortar is called "unsound".

The quality of soundness is easily proved by the autoclave test — an accelerated test under great heat and pressure in a steam chest.

Brixment makes sound mortar. It easily meets the autoclave test requirements included in Federal and ASTM Specifications for masonry cement.

Soundness is only one of many advantages which have helped make Brixment the most widely-used masonry cement on the market. It will be worth your while to hear *all* the advantages of Brixment the next time a Brixment salesman calls on you. Or write direct for full details. Address: Louisville Cement Company, Louisville 2, Kentucky.

LOUISVILLE CEMENT COMPANY, LOUISVILLE 2, KENTUCKY

Cement Manufacturers Since 1830

WASHINGTON OBSERVER

- **Administration split is developing over what causes inflation**
- **Uncorking a House bottleneck**

● **The Administration is coming up to critical steel wage negotiations concerned that price rises resulting from a wage settlement will set a pattern for other industries and set off a new round of price increases.**

The government's entire anti-inflation campaign has been narrowed in the last few weeks to concentrate almost exclusively on the steel industry, which opens contract negotiations next week with the steelworkers.

The White House got little consolation last week from U. S. Steel chairman Roger Blough and steelworkers chief David McDonald. Both gave little evidence of weakening in their stands that it is up to the other side to be moderate in demands.

The Administration is trying hard to pressure steel companies out of a price rise but a serious cleavage in views is developing.

On the one hand is Raymond Saulnier, chairman of President Eisenhower's Council of Economic Advisers.

Economist Saulnier is preaching that wage increases are the main factor behind recent inflation.

Taken by itself, this would appear to put the Administration solidly on the side of the steel management in efforts to get a modest wage settlement.

But there's another view emerging that could complicate the whole Administration drive. This is coming from Vice President Nixon's chief economist, W. Allen Wallis, new staff director of the Vice President's Cabinet investigating committee on price stability for economic growth.

Economist Wallis strongly believes that wage increases are not the main source of inflation. He believes high wages are necessary to create purchasing power. This is a view that has been taken in steelworker advertisements to justify a sizable increase in wages.

Congress also is turning the heat on steel. Sen. Estes Kefauver's (D., Tenn.) judiciary subcommittee is holding hearings on a government price review bill. The measure would require that private industry appear before the government to justify price increass. An incrase in the price of steel would give strong impetus to its passage.

Messrs. Blough and McDonald appeared before the Kefauver group last week and both strongly opposed the measure as inimical to their aims. Mr. Blough claimed it was a long step in the direction of direct price controls. Mr. McDonald recognized that before any such measure is approved it would include provisions for a government review of wage increases as well and inject the government into collective bargaining.

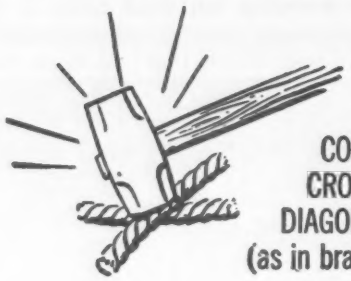
● **The House Rules Committee is holding up some important legislation** for the construction industry (see p. 26).

A prime example: the housing bill. As ENR went to press, the 1959 Omnibus Housing Act had been lodged there for two months, awaiting clearance for the floor. This embarrasses Speaker Sam Rayburn, who promised liberal Democrats early this year that he would not let ultraconservative Chairman Howard Smith (D., Va.) turn the committee into a graveyard for liberally oriented legislation.

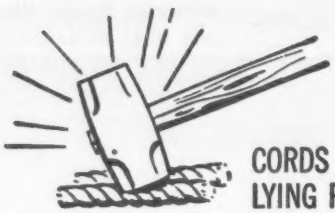
The committee is deadlocked 6-6 on clearing the bill, but a break is expected soon—probably with one opposition Republican absenting himself when another vote is taken. If that doesn't happen, some sources say Speaker Rayburn himself will be the No. 1 signer on a petition to force the housing bill out of the committee.

ROYAL CORD AIR HOSE

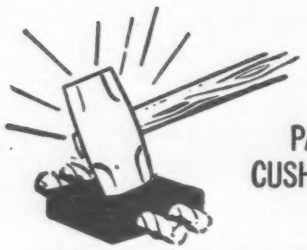
WHICH HOSE CONSTRUCTION CAN TAKE THE BEATING?



CORDS CROSSED DIAGONALLY? (as in braided hose)



CORDS LYING PARALLEL?



OR

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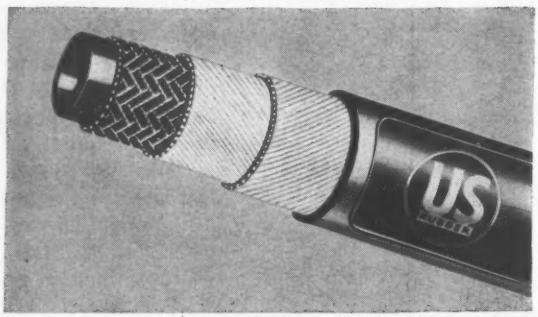
Yes, the exclusive "U. S." development—parallel cords cushioned in rubber can take and *do* take the *most* pounding. Observe how the cords run parallel in each of the two pressure-resisting plies; there is no crossing as in conventional braided hose. Each ply is separated by a layer of rubber—each cord is cushioned in rubber. This means there can be no friction created between cords, and therefore no chance of any shearing within the carcass.*

A hose with spiral plies is *always* stronger, because more strands can be used throughout the entire hose length than can be used in other constructions. *U. S. Royal Cord Air Hose has the same construction as that of a tire.* This is the exclusive quality you find under its cover.

The exclusive and outstanding features you get in U. S. Royal Cord Air Hose constitute one of the main reasons why



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The 10 Top Contractors of 1958 . . .

(Rated by volume of contracts reported by ENR.)

1.	Peter Kiewit Sons' Co., Omaha	$238,287,658•
2.	Merritt-Chapman & Scott Corp., New York City	195,633,525
3.	Diesel Construction Co., Inc., New York City	188,000,000
4.	Morrison-Knudsen Co., Inc., Boise, Idaho	167,054,382•
5.	American Bridge Div., U. S. Steel Corp., Pittsburgh	156,227,755
6.	George A. Fuller Co, New York City	115,244,625•
7.	Perini Corp., Framingham, Mass	87,864,990•
8.	United Engineers & Constructors, Inc., Philadelphia	87,300,000
9.	Ebasco Services, Inc., New York City	85,000,000
10.	S. J. Groves & Sons Co., Minneapolis	75,662,692

• *Includes joint ventures*

77 Firms Join $25-Million Club

Seventy-seven companies hit ENR's top contractor list for 1958. Each one won new contracts last year totaling more than $25 million.

The company listing is based on domestic contract awards reported to ENR and its sister publication, CONSTRUCTION DAILY.

The list reflects last year's decline in construction contract awards. This is a result, primarily, of the large drop in industrial building and other types of private work. Only 15 building contractors are among the 77. There are 23 heavy contractors and 39 companies doing both heavy construction and building work.

Thirty-two companies did not take part in joint ventures; but the majority on the list climbed over the $25-million mark on both individually held contracts and joint ventures.

Six companies managed to pile up more than $100 million worth of new contracts. The volume of three of these consists of individually held contracts. They are: Merritt-Chapman & Scott Corp., New York City; Diesel Construction Co., New York City; and American Bridge Division, U. S. Steel Corp., Pittsburgh.

But compare the number of companies topping $100 million in new business in 1958 to the number that turned the trick in booming 1956. Then, 19 companies logged new business of $100 million or more (ENR Jan. 2, 1958, p. 21). And 13 of the 19 did it without joint ventures.

Last year, 36 companies had new contract volume between $40 million and $100 million. Eighteen scored without the help of joint ventures. In 1956, 44 contracting companies had new volume from $40 million to $100 million, 16 without the help of joint ventures.

A total of 41 companies had new business in 1958 of more than $25 million, but less than $40 million. The volume of 14 of them was based on individually held contracts.

Largest contract volume was scored by Peter Kiewit Sons' Co. of Omaha, which won new contracts worth $238.3 million, counting both individually held contracts and joint ventures.

Merritt-Chapman & Scott Corp. of New York City was second with $195.6 million in new contracts—all on individually held contracts.

Diesel Construction Co., Inc. of New York City was third with new volume amounting to $188 million, also entirely in individually held contracts.

Kiewit's largest contract was for $60 million, a joint venture with Patterson-Emerson-Comstock, Inc. of Pittsburgh, and Tidewater Construction Corp.,

How Top Contractor List Is Developed

The contract total for each company excludes contracts for jobs outside the U. S. Contract awards to subsidiaries are not included in the 1958 new contract volume shown for each of the companies on this page and on page 22.

The totals include both joint ventures and individually held contracts. The joint ventures are credited at full amount to each member of the venture; there is no prorating.

All contract figures are for prime contracts. For this reason, companies such as Raymond International, Inc. of New York City are not listed. Raymond's largest prime contract volume is for work outside the U. S. Its domestic volume is primarily for subcontract work.

Minimum size of contracts reported by ENR last year were:

- Water supply, earthwork, waterways —$44,000.
- Other public works—$73,000.
- Industrial buildings—$93,000.
- Other buildings—$344,000.

. . . Other Top Contractors of 1958

Rated by volume of contracts reported by ENR. • Includes joint ventures

11. The Fluor Corp., Ltd., Los Angeles, Calif.	$75,500,000
12. Johnson, Drake & Piper, Inc., Minneapolis, Minn.	68,471,495•
13. Tidewater Constr. Corp., Norfolk, Va.	61,090,400•
14. Gauldwell-Wingate Co., Inc., New York, N. Y.	60,988,000
15. J. W. Bateson Co., Inc., Dallas, Tex.	60,771,762•
16. Patterson-Emerson-Comstock, Inc., Pittsburgh, Pa.	60,000,000•
17. United Engineering & Foundry Co., Pittsburgh, Pa.	60,000,000
18. Robert E. McKee, Gen. Contr. Inc., El Paso, Tex.	55,293,320
19. J. A. Jones Constr. Co., Charlotte, N. C.	53,482,002•
20. L. E. Dixon Co., San Gabriel, Calif.	52,835,702•
21. The Lane Constr. Corp., Meriden, Conn.	51,462,127
22. Frouge Constr. Co., Inc., Bridgeport, Conn.	50,163,806•
23. D. W. Winkelman Co., Inc., Syracuse, N. Y.	49,914,767•
24. Girdler Constr. Div., Chemetron Corp., Louisville, Ky.	48,400,000
25. Arundel Corp., Baltimore, Md.	48,042,333•
26. Bechtel Corp., San Francisco, Calif.	47,820,000
27. Hunkin-Conkey Constr. Co., Cleveland, Ohio	47,132,960•
28. MacDonald Constr. Co., St. Louis, Mo.	47,116,963•
29. Turner Constr. Co., New York, N. Y.	46,065,267
30. Walsh Constr. Co., New York, N. Y.	46,035,160•
31. Brown & Root, Inc., Houston, Tex.	45,870,535•
32. Guy F. Atkinson Co., South San Francisco, Calif.	43,461,731
33. Rust Engineering Co., Pittsburgh, Pa.	41,030,478
34. Daniel Constr. Co., Inc., Greenville, S. C.	40,892,274
35. Swinerton & Walberg Co., San Francisco, Calif.	40,337,375
36. American Pipe & Constr. Co., Los Angeles, Calif.	40,168,072•
37. F & S Contg. Co., Butte, Mont.	39,988,320•
38. Western Contg. Corp., Sioux City, Iowa	39,152,757
39. Terminal Constr. Corp., Wood-Ridge, N. J.	38,141,058•
40. H R R Constr. Corp., New York, N. Y.	37,494,200
41. Green Constr. Co., Des Moines, Iowa	37,442,245•
42. Edward Balf Co., Hartford, Conn.	37,366,805•
43. Savin Constr. Corp., East Hartford, Conn.	37,366,805•
44. Mid-Valley Utility Constructors Inc., Houston, Tex.	37,102,497•
45. L. F. DeFelice & Son, Inc., North Haven, Conn.	36,546,343•
46. Fruin-Colnon Contg. Co., St. Louis, Mo.	36,043,795•
47. Blount Bros. Constr. Co., Montgomery, Ala.	35,930,490
48. Winston Bros. Co., Minneapolis, Minn.	35,559,167•
49. Gull Contg. Co., Inc., Flushing, N. Y.	34,966,480•
50. Utah Constr. Co., San Francisco, Calif.	34,871,481•
51. C. H. Leavell & Co., El Paso, Tex.	34,731,354•
52. T. L. James & Co., Inc., Ruston, La.	34,309,564•
53. Frazier-Davis Constr. Co., St. Louis, Mo.	34,081,135•
54. Stone & Webster Eng. Corp., Boston, Mass.	33,500,000
55. M. W. Kellogg Co., New York, N. Y.	33,110,000
56. Hendrickson Bros., Inc., Valley Stream, N. Y.	32,862,443
57. Sumner Sollitt Co., Chicago, Ill.	32,119,000
58. Channel Constr. Co., New York, N. Y.	31,855,000•
59. Bethlehem Steel Co., Bethlehem, Pa.	31,796,527
60. Del E. Webb Constr. Co., Phoenix, Ariz.	31,252,541•
61. Gust K. Newberg Constr. Co., Chicago, Ill.	31,094,000•
62. Gilbane Bldg. Co., Providence, R. I.	30,947,776
63. Al Johnson Constr. Co., Minneapolis, Minn.	30,300,289•
64. C. L. Peck, Los Angeles, Calif.	29,761,255•
65. Arch Dam Constr. Co., Omaha, Nebraska	29,602,497•
66. Coker Constr. Co., Omaha, Neb.	29,602,497•
67. Henry C. Beck Co., Dallas, Tex.	29,196,000•
68. Osberg Constr. Co., Seattle, Wash.	28,324,939•
69. Manson Constr. & Eng. Co., Seattle, Wash.	27,589,777•
70. M & K Corp., San Francisco, Calif.	27,577,847•
71. Moss-Thornton Co., Inc., Leeds, Ala.	27,427,430•
72. H. B. Zachry Co., San Antonio, Tex.	27,090,938
73. James Stewart & Co., Falls Church, Va.	27,090,766
74. Foley Bros., Inc., Pleasantville, N. Y.	26,146,349•
75. Griffith Co., Los Angeles, Calif.	25,861,512
76. Albert Gersten, Beverly Hills, Calif.	25,467,284
77. A. L. Jackson Co., Chicago, Ill.	25,329,874

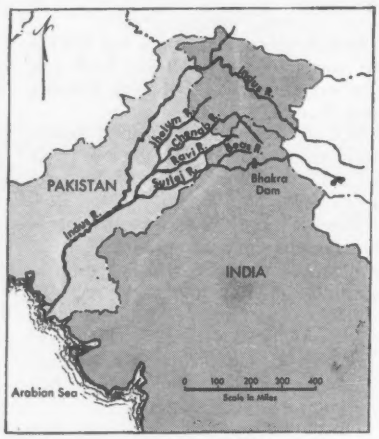
Norfolk, Va., for a U. S. Naval Radio Observatory at Sugar Grove, W. Va.

Largest individually held contract was $13.3 million for a runway, aprons and utilities at Glasgow Air Force Base, Glasgow, Mont.

Despite the large joint ventures and individually held contracts, the Kiewit company did not ignore small jobs. Its total of 86 new contracts was the largest number garnered by any of the 77 companies. Kiewit's smallest contract was $78,013 for paving a detour road and erecting its guard rail. There was another for $80,259 for I-beam spans. The company won many other contracts under $1 million—most of them in the $300,000 to $400,000 range.

Merritt-Chapman & Scott won nine contracts. The smallest was $257,985 for extension of existing bulkheads and construction of piers at Narragansett, R. I.; the largest was $98.3 million for the main power plant of the Niagara Power Project.

Diesel took six new contracts, but one accounted for 53% of its $188-million total. That was a $100-million contract for construction of the 55-story Grand Central City in New York City (ENR Feb. 26, p. 23). This project will consist of offices, a garage, theaters and restaurants. Smallest of the company's awards was $1.5 million for a motel in New York City.



India, Pakistan Settle Indus Dispute for a Year

India and Pakistan have signed a one-year agreement on allocation of the waters of the Indus River and its tributaries. The action raises hopes in Washington for a permanent settlement of the Indus dispute, which has embittered relations between the two countries for 11 years.

The agreement, in effect, renews a pact made three years ago and renewed two years ago. Its terms have never been made public because of the sensitivity of the subject.

Jobs for 'Little Guy'

U. S. will set aside small contracts for small firms

The Small Business Administration expects government agencies to set aside upwards of $100 million worth of contracts for small contractors during fiscal 1960, which begins June 1.

These contracts—from the Defense Department, the General Services Administration, the Post Office Department and the like—are generally in the $10,000 to $15,000 range, with a few as high as $50,000.

The "set-aside" program was authorized last year in legislation continuing the SBA. It has been operating in many industries for some time, but the agency has only recently been able to start setting aside construction jobs.

SBA defines a small contractor as one who grossed $5 million or less per year over the past three years.

Some contracting groups are complaining about the program. The National Resources Development Association, which is made up of construction firms in all parts of the country, says it is unfair to limit bidding on certain jobs to firms within the SBA definition. Associated General Contractors also came out against the program at its last convention (ENR Jan. 29, p. 21).

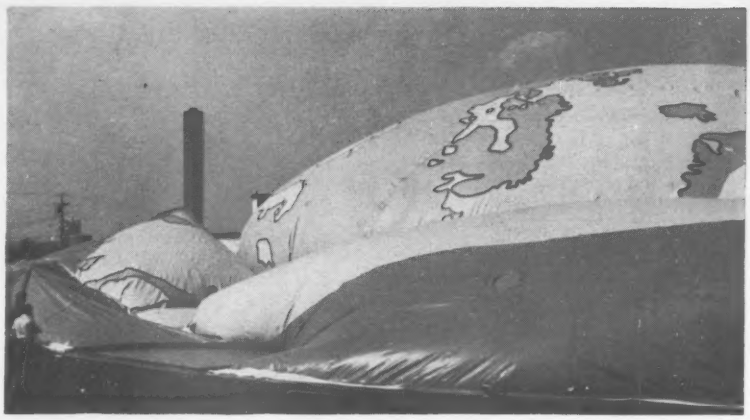
SBA officials point out, however, that a considerable amount of the several millions of dollars worth of contracts set aside in the past would have gone to small business organizations anyway.

The program for construction was drawn up by Herbert Pierce, who heads the set-aside program on federal supply schedules. Mr. Pierce says, "awards will cover just about all kinds of smaller construction jobs, such as hangars, runways and even some small dams and bridges."

There are 37 regional SBA representatives stationed at major federal procurement centers around the country. They review all supply schedule contracts for set asides to small businesses. Along with a half dozen Washington representatives, they also review construction contracts.

There is only a loose definition of the criteria to be used in setting a contract aside. The regulation requires a determination of sufficient competition to assure the government a reasonable price, and approval of the procurement officer.

Regional SBA offices can inform contractors how to apply for set-aside contracts. The Commerce Department puts out a daily list of contracts up for bid. It costs $7 per year. Contractors can also write directly to the armed services to get on bidder's lists.



Inflated Cloth Becomes . . .

. . . Dome for Missile Maintenance

The U. S. Army's Pentadome—five air-supported spherical domes similar to the one pictured above—successfully passed erection tests last week at the New Cumberland General Depot, near Harrisburg, Pa. It will be exhibited to the public at Andrews Air Force Base, Washington, D. C., on May 9 and 10.

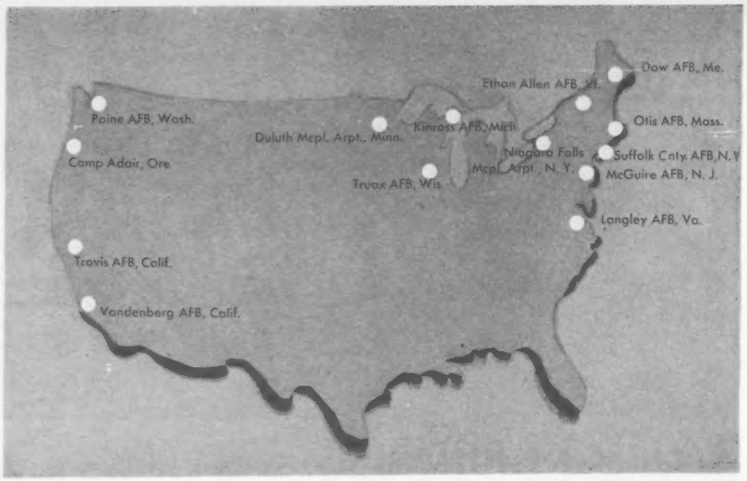
The Pentadome is intended primarily as a missile maintenance shelter. It consists of a 150-ft-dia dome surrounded by and connected with four 100-ft-dia domes.

The center dome, decorated with a map of the northern hemisphere, is made of vinyl-coated nylon weighing 24 oz per sq yd. The base fabric is a 10-oz nylon yarn. The four smaller domes are made of 5½-oz nylon fabric, which weighs 18 oz per sq yd after being coated with vinyl. Two-ply, 45-deg-bias laminated material is used in the crown section to minimize distortion under wind load. The resulting translucent cloth is designed to be flexible at −40F. Seams were heat sealed.

Principal personnel entrances are through revolving doors. Large equipment and missiles will enter and leave through an air lock 22 ft wide, 18 ft high and 100 ft long. Arched openings about 19 ft wide by 13 ft high provide access between domes.

To maintain pressure inside the domes, 12 centrifugal blowers will supply air at 22,000 cfm. The shape of the domes can be maintained by a pressure of 0.03 psig, but the blowers can build the pressure up to 0.09 psig, estimated by the designers to be sufficient for stability in a 70-mph wind.

The Pentadome was developed by the U. S. Army Quartermaster Corps in collaboration with the Ordnance Corps. It was fabricated by Birdair Structures Inc., Buffalo, N. Y., from nylon fabric supplied by Wellington Sears Co., New York City, and coated with vinyl by H. M. Sawyer & Son Co. Watertown, Mass. Cost of the initial Pentadome is $180,000, but they're expected to be less expensive in the future.



Bomarc Base-Building Booms

Ten more Bomarc bases will go to contract in the next three months. In all, $170 million worth of construction will go into the nation's 14 Bomarc sites.

Four bases are already under construction—Dow AFB, Me.; McGuire AFB, N. J.; Otis AFB, Mass.; and Suffolk County AFB, N. Y.

Construction costs for bases on which contracts have already been let range from $10.5 million at Otis and Dow to $12.5 million at McGuire and Suffolk. Cost estimates for the ten other bases run from $10 million to $13.5 million.

Bomar is a long-range, antiaircraft missile that ties into the SAGE air defense system (ENR April 23, p. 25). The SAGE electronic control centers will track enemy aircraft, compute the plane's flight path, then automatically launch and guide Bomarc missiles from sites several hundred miles away.

The 47-ft-long Bomarc missile is boosted into the air by a rocket engine that is jettisoned after launching, and powered in flight by twin ramjet engines. First models will have a range of 200 miles. They will be launched by liquid-propellant rockets. Later models will have double the range and be launched by solid-fuel rocket motors.

The earlier models will have a speed of about 2,000 mph and an altitude ceiling of 70,000 ft. Major production contractors are Boeing Airplane Co., Westinghouse Electric Corp. and Marquardt Aircraft Co.

A Bomarc site consists of an average 74 acres—49 acres for the launching area and 25 for ground support operations. The number of launchers will vary from base to base. But at least a dozen launcher-shelter structures per base are likely, and as many as 112 are planned. For a detailed description of a Bomarc base see ENR Dec. 4, 1958, p. 26.

The Defense Department has been slow in releasing funds for construction of Bomarc bases, primarily because of an inter-service squabble over air defense strategy.

The Air Force, with its Bomarc, and the Army, with its shorter-range Nike-Hercules, have been competing for military funds to build air defense facilities. Some Congressmen have urged the Pentagon to scrap one of the competing projects. Instead, the Pentagon has decided to build both types of missiles. But both Bomarc and Nike-Hercules will be set up in fewer installations than originally planned.

Behind all the squabbling over air **defense, there's strong sentiment among some military experts for substantially scaling down both Bomarc and the Nike-Hercules programs—perhaps even halt them.** Both missiles are designed to knock out manned bombers. Neither can destroy long-range ballistic missiles.

It's generally believed that the Russians have cut back their output of manned bombers to token proportions, while stressing production of ICBMs. The Bomarc-Nike critics (notably in the Navy) believe the threat of a Soviet bomber attack on the U.S. is minor, that the more serious threat lies in the ICBM—against which there is no known defense.

As a result, they are skeptical about the hundreds of millions of dollars being spent for antiaircraft missiles. They argue that the funds should be diverted to other military projects

Where the Bomarc Bases Will Be

Here is a rundown of the ten Bomarc bases still to be built.

• **Langley AFB, Va.**—Construction contract bid invitations were advertised March 23. Bids were scheduled for opening April 21. Architect-engineer: Wigton Abbott Corp., Plainfield, N. J.

• **Kinross AFB, Mich.**—Construction contract bid invitations were advertised April 6, to be opened May 6. Architect-engineer: Giffels & Rossetti, Inc., Detroit.

• **Duluth Municipal Airport, Minn.**—Invitations to bid advertised April 16, to be opened May 14. Architect-engineer: Ellerbe & Co., St. Paul.

• **Ethan Allen AFB, Vt.**—Invitations to bid to be advertised in May, opened in June. Architect-engineer: Fay, Spofford & Thorndike, Inc., Boston.

• **Vandenberg AFB, Calif.**—Invitations to bid to be advertised mid-May, opened in mid-June. This will also be the site of Atlas and Titan ICBMs. Architect-engineer for the Bomarc site still to be selected.

• **Niagara Falls Municipal Airport, N. Y.**—Invitations to bid advertised April 10, to be opened mid-May. Architect-engineer still to be selected.

• **Truax AFB, Wis.**—Invitations to bid to be advertised mid-May, opened mid-June. Architect-engineer: De Leuw, Cather & Co., Chicago.

• **Paine AFB, Wash.**—Invitations to bid advertised April 14, to be opened mid-May. Architect-engineer still to be selected.

• **Camp Adair, Ore.**—Invitations to bid advertised April 14, to be opened mid-May. Architect-engineer still to be selected.

• **Travis AFB, Calif.**—Contracts to be handled in two batches—invitations to bid to be advertised in mid-May and mid-June, opened mid-June and mid-July. Architect-engineer for the Bomarc site still to be selected.

Bomarc installations are now under construction at McGuire AFB, N. J., Suffolk County AFB, N. Y., Otis AFB, Mass. and Dow AFB, Me.

Labor Reform: Act II Coming Up

Chances are the House will work toward a tougher bill than the Senate's. Outlook: Reform may get hung up.

The Kennedy-Ervin labor reform bill was rammed through the Senate last Saturday on a 90 to 1 vote after eight days of long and often bitter debate.

Despite a series of floor amendments, the bill remains substantially a reporting and disclosure measure to curb union corruption. It contains almost intact the original Title VI Taft-Hartley amendments that would authorize the construction industry's use of pre-hire labor contracts, seven-day union shops, employer apprenticeship contributions and certain hiring criteria for union referral systems.

This means the bill will not be fought by the AFL-CIO construction unions. But it is headed for employer criticism on many fronts. That's because the Senate specifically rejected (67 to 27) reservation of all Taft-Hartley amendments for later and separate consideration. And it refused (67 to 24) to substitute for Title VI various Administration proposals that would have allowed certification without election for construction unions and tightened the present bans on secondary boycotts and organizational and blackmail picketing.

Strong opposition to the bill is already building up in the House. Rep. Carroll Kearns (R., Pa.), an important voice in the House Labor Committee, predicts a tougher bill than the Kennedy-Ervin measure when House members vote on labor reform. He has the support of committee Chairman Graham Barden (D., N. C.), who says he wants a strong reform bill or none at all.

The AFL-CIO isn't enthusiastic about the Senate version of the Kennedy-Ervin bill. It will try to get the House to make some changes, but it is not expected to withdraw its support. The Senate kept a close eye on union lobbyists during debate on the bill and —with the 1960 elections fast approaching—tried not to ruffle them too much.

• **McClellan loses**—The biggest threat to Senate approval of any reform legislation came from introduction by Sen. John McClellan (D., Ark.) of a "bill of rights" for rank-and-file union members.

The amendment was designed to permit, with the help of the Secretary of Labor, effective expression of rank-and-file discontent and to prevent union members from becoming the victims of excessive fees, dues and assessments. But it was hastily and loosely drawn and doubts about its virtues and pitfalls developed as soon as it was adopted, by a vote of 47 to 46.

The basic objection to the McClellan amendments seemed to be that they went too far—that they would be unduly restrictive on legitimate union business and would give management too much of an edge in disputes.

Sen. John Kennedy (D., Mass.) called it a "Pandora's box of lawsuits, wildcat strikes, labor spies and federal bureaucracy" and said, "good intentions have overcome good sense." The AFL-CIO said it was "unreasonable" and "destroys the historic concept of a union as a voluntary association." Others said it would create mob rule, destroy union democracy, facilitate Communist infiltration, hamstring union operations, inundate the Labor Department and courts with litigation and force racial integration. (Although most Senators from the South voted for the amendments, many of them had second thoughts.)

A tie vote of 45 to 45 to reconsider the amendment was broken by Vice President Nixon, who voted against reconsidering. But through some parliamentary slight-of-hand the amendment was later changed substantially and approved by a vote of 77 to 14.

As it now stands, the amendment reaffirms the right of union members to engage in open criticism of union policies provided the dissident unionists conform to the democratic concept of majority rule and abide by reasonable rules and regulations imposed by the union. The size of union dues, fees and assessments is made subject to rank-and-file dictates. Union disciplinary action must follow the usual concept of due process of law. Union members whose rights are infringed may sue for relief in a federal court.

• **Major amendments**—In addition to the "bill of rights," a number of other amendments of more substantive significance were tacked onto the Kennedy-Ervin bill by the Senate. Here is a rundown of the principal ones:

• A hot-cargo clause, limited to transportation, voids hot-cargo clauses in existing and future labor contracts and forbids a union to try to negotiate such a provision. The Senate action marks the first legislative attempt to invalidate negotiated union refusals to handle goods that come from a third party with which the union has a dispute. But it leaves untouched practices of this kind that occur in the construction and other non-transportation industries.

• The Kennedy concept of making the National Labor Relations Board exercise full and exclusive jurisdiction over labor problems is replaced by a new approach to "no-man's land." Under the amendment, any state agency, other than a court, may assume jurisdiction declined by the NLRB, but it must handle labor problems so taken under federal and not state law.

• Picketing for the purposes of organization is banned when the employees sought to be organized are already represented by a legitimate union, or when the picketing union has lost an election in the last nine months. Extortion picketing is also outlawed.

• The right of economic strikers to vote in a union representation election is retained but the NLRB has the power to limit the length of time the right survives.

• Union members are given access to the basic financial records on which union disclosure reports to the Secretary of Labor are based.

• The Kennedy-Ervin bill is made to apply to regional labor organizations as well as to labor unions. A specific purpose of the amendment is to make sure the regional conferences of the teamsters will be covered by the law.

• Union officials are made, in the eyes of the law, trustees of union dues and moneys. Improper use of union funds thus becomes a matter that can be taken to court. Some fear this provision could be used to curb union use of union funds for political purposes.

Soviet Foundation Experts Coming for Seminars

A group of Russian soil mechanics and foundation engineers is scheduled to arrive in the U. S. May 31 to participate in four regional seminars at Princeton, M.I.T., Illinois and the University of California.

The meetings are the result of an exchange arrangement whereby United States engineers will visit Russia later this year. The exchange is co-sponsored by the Highway Research Board, the American Society of Civil Engineers and the U. S. National Council on Soil Mechanics and Foundation Engineering.

Those interested in participating in the regional seminars may contact the local chairmen: G. P. Tschebotarioff of Princeton, T. W. Lambe of M.I.T., E. B. Peck of Illinois and H. B. Seed of the U. of California.

Where the Key Bills Stand in Congress

AEC Construction (S 1194): Authorizes $115 million for AEC construction projects.
Status: Joint Atomic Energy Committee will clear for House and Senate action soon.
Outlook: Bright—but not before a fight to add $60 million for civilian reactors.

Department of Science (S 676): Creates Cabinet-level department to combine functions of several federal scientific agencies.
Status: Hearings under way.
Outlook: No chance.

Public Works: Fiscal '60 appropriations include $15 million for TVA, $902 million for Army Engineers, $251 million for Bureau of Reclamation.
Status: Appropriations Committee still at work on the package.
Outlook: More than $1 billion will be voted after minor cuts.

Minimum Wages (S 1046, HR 4448): Raises minimum to $1.25 an hour, broadens coverage.
Status: Senate hearings open May 5; House hearings not scheduled.
Outlook: Doubtful this year; maybe 1960.

Area Redevelopment (S 722, HR 3505): Authorizes low-interest loans for industrial development of chronically depressed areas.
Status: Senate passed $389-million bill; House cut it to $251 million and will make Congressional review a spending prerequisite.
Outlook: Tough going; President isn't sold.

Tax Incentives (HR 5): Would stimulate private investment abroad.
Status: Pending in Ways & Means Committee.
Outlook: Fairly good.

Foreign Aid (S 1451): $2.3 billion for economic assistance is included in the $3.9-billion authorization for fiscal '60.
Status: House hearing on now; Senate hearings next.
Outlook: Big ($1 billion) cut possible.

Supplemental Appropriations (HR 5916): Includes $225 million for development loan fund, which lends for construction abroad.
Status: House has voted $100 million; Senate has voted $200 million.
Outlook: Split the difference.

Labor (S 1555): The first significant amendment of the Taft-Hartley Law puts accent on cleaning up wrongdoing.
Status: The Senate has passed the Kennedy bill (p. 25). Similar legislation is under study in the House.
Outlook: House is likely to come up with a tougher bill; this could mean no labor reform action this year.

Unemployment Benefits (HR 3547): Increases amount and duration of payments.
Status: Hearings concluded before House Ways and Means Committee.
Outlook: Not much chance.

Water Resources Study (SR 48): Creates a select Senate committee to study subject.
Status: Senate approved, voted $175,000.

Price Posting (S 215): Requires major business firms to notify government before increasing prices, and justify hikes before FTC.
Status: Hearings begun Both industry and labor are opposed.
Outlook: Little chance.

Airport Construction (S 1): Continues federal aid for four more years.
Status: Senate OK'd $465 million. House turned down a $297-million bill.
Outlook: Veto coming unless outlay is cut.

Housing (S 57): Omnibus bill has new authorization for FHA mortage insurance, raises GI interest rate to parity with FHA, authorizes urban renewal, public and college housing.
Status: Passed by Senate but bottled up in House Rules Committee.
Outlook: First big spending showdown between White House and Congress.

Interstate Formula (HR 5950): Increases apportionment for fiscal '62 from $2.2 billion to $2.5 billion and keeps "needs" formula.
Status: Hearings start early next month.
Outlook: Good.

Interstate Construction Deadline (HR 4695): Extends building start from 5 to 7 years after right-of-way acquisition.
Status: House passed; pending in Senate committee.
Outlook: Good.

Tollroad Reimbursement (HR 6303): Repays states for tollroads.
Status: Pending.
Outlook: No chance.

Lower Excises (HR 3658): Reduces excises on new autos and parts to 5%, earmarks receipts for Highway Trust Fund, repeals Byrd amendment.
Status: Hearings are being conducted by the House.
Outlook: Just fair, couldn't survive veto.

Interstate Money: Provides funds to keep the program on schedule.
Status: Not yet introduced.
Outlook: A certainty.

Low-rate U. S. Loans (HR. 5944): Provides $1 billion in loans to construct local sewage projects, hospitals, nursing homes.
Status: House hearings are now under way.
Outlook: Just fair, couldn't survive veto.

Sewage Aid (HR 3610): Provides $100 million a year for 10 years for communities building sewage treatment plants.
Status: Ready for House debate.
Outlook: Possible, but will have to be cut.

TVA Bond Financing (HR 3640, S 921): Permits TVA self-financing of new power facilities through the use of bond issues.
Status: House Rules Committee sitting on it; no Senate hearings yet.
Outlook: Passage likely, but veto possible.

Power Act Amendment (S 584): Gives public power groups advantage in getting FPC licenses for hydropower projects in comprehensive river development.
Status: Pending in Senate Commerce Committee.
Outlook: Poor, not much support for this amendment.

River Basin Planning (HR 3704): Permits President to establish separate commissions to coordinate planning for major river basins.
Status: House Interior Committee hasn't scheduled hearings.
Outlook: Could die in committee.

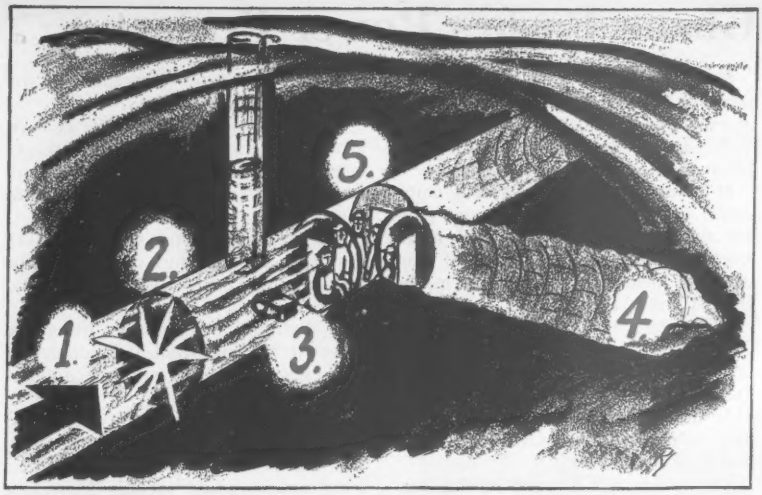
San Luis Irrigation (S 44, HR 5681): Construction of San Luis unit of California's Central Valley Project.
Status: OK'd by Senate Interior Committee; House committee action due soon.
Outlook: Good.

River Storage (S 72, HR 2352): Construction of Navajo and San Juan-Chama units of Colorado River storage project.
Status: Senate Committee OK'd; House hearings still to come.
Outlook: Good.

REA Loans (HR 1321): Returns right to pass on REA loans to REA Administrator. Secretary of Agriculture now has this right.
Status: Passed both houses.
Outlook: Poor. Secretary of Agriculture Benson and GOP leaders advise veto.

Military Construction (HR 5674): Authorizes $1.25 billion in domestic and foreign work for fiscal '60.
Status: Passed by the House, goes to the Senate.
Outlook: Good. No major changes expected.

Self-employed Tax Aid (S 1194): Defers taxes on up to $2,500 a year for self-employed persons setting up retirement funds.
Status: Passed House; Senate may start hearings next month.
Outlook: If Senate doesn't kill, President will.



RISING WATER in Pittsburgh sewer (1) smashed barrier (2) and flooded pump at access shaft (3). Silence alerted men at tunnel face (4). They hid in airlock (5).

Floods Trap Sandhogs in Tunnel

Five sandhogs were trapped 65 ft underground for four hours when water flooded 30 miles of a new Pittsburgh sewer tunnel last week. They holed up in an airlock until water was lowered enough to let them escape.

The men were digging the last tunnel section in Allegheny County Sanitary Authority's new $100-million sewerage project. They had extended the section —a branch off a main interceptor—500 ft from the main tunnel when the flooding occurred. They were working under 14 lb of air. The airlock was located at the intersection of the main and branch tunnels.

The silence when pumps shut off at the bottom of the vertical access shaft leading from the main tunnel to the surface (see sketch) gave the men their first indication that something was wrong. They went back to the airlock to investigate and found that water had flooded the dewatering pump at the bottom of the shaft and had risen high enough to cut off escape from the airlock.

They shut themselves in the airlock, telephoned the surface for help and settled down to wait.

It was 3:30 AM, but things started happening fast. Half an hour later, John Laboon, the authority's executive director and chief engineer, arrived at the system's still unfinished sewage-treatment plant 10 miles away. Then came electricians and others he had routed out of bed. There was a big new 25-mgd pump at the plant, but it hadn't been completely hooked up.

By 6:40 the men had the pump running, and by 8 AM the trapped sandhogs were out of the tunnel. The next shift went to work as usual.

If it had proved impossible to get the pump at the treatment plant running quickly, the men might have remained trapped for 18 hours while smaller pumps lowered the water level.

Just where the water came from has not been determined yet. The heavy inflow stopped, however. The big pump got the entire system dry in about 12 hours.

The rising water would not have reached the airlock in the first place but for failure of a temporary bulkhead just downstream from the access shaft. Designed to close automatically in case of water inflow, the structure gave way.

A-Power Awards Up in First Quarter; More Due

Contract awards for atomic plants and related construction are going to contract in much greater volume this year than in 1958. And you can expect a further increase in the months ahead.

Volume in the first three months of this year was $77.6 million. That's 2½ times the volume in the same period last year.

The first-quarter upturn this year was swelled by contracts for three private nuclear power plants ranging in size from $10 million to $33.1 million. Of the first-quarter total, $66.1 million represents private contracts for atomic plants and facilities, including a $1-million uranium mill in Jeffrey, Wyo. The private total is 41% above the volume of $47 million of private contracts let in all of 1958. It is also well above the $58.7 million in private contracts awarded in 1956.

With this good start, private contracts this year may top the 1957 total of $77.2 million. That was the best year since 1955. However, the 1959 total will probably fall short of the record $114.3 million in private contracts awarded during 1955.

While more big power plants are in the planning stage, there's a long lead time between the start of research and development and award of a construction contract. Approval required from the Atomic Energy Commission adds to the time lag.

But the future looks big and progress should speed up. AEC policy is to "achieve and demonstrate" economic atomic power within 10 years.

TVA May Get Bond Financing

The Tennessee Valley Authority this year may get the power to finance its new construction, equipment and modernization needs as they occur. Under terms of a measure now in Congress, the agency would be able to sell up to $750 million in revenue bonds. The bonds would be exempt from state and local taxes, but not from federal taxes.

If the bill is approved TVA no longer would have to depend on appropriations from Congress to finance its operation.

The measure (HR-3460) will probably be approved by the House by mid-May. From there, battle over the controversial bill will shift to the Senate Public Works Committee.

An amendment tacked on by the House Public Works Committee limits the TVA service area to the boundaries existing on July 1, 1957. Eight towns in the immediate TVA area, however, were left open to future TVA service.

Senate backers of a TVA bond bill are holding up action until they see what kind of legislation is approved by the House. Senate approval also is is considered a certainty this year.

A White House veto is still possible, but restrictive amendments like the area limitation are expected to play a big part in winning the President's approval.

The National Society of Professional Engineers has been critical of a section of the bill permitting TVA to perform engineering work for any private companies or public agencies that contract to buy TVA power.

The Associated General Contractors has also criticized the bill for allowing TVA to continue hiring its own engineers and contractors instead of awarding bids to the "lowest responsible bidder."

Some bankers are against the measure because, they say, it permits the agency to escape from "Congressional and budgetary controls."

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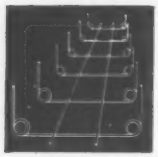

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Ghana Pushes Power Project

Kaiser Industries Corp. will start immediately on $3 million to $4 million of preliminary construction work for a Volta River hydroelectric project in Ghana.

It is the first step in a long-range power and industrial development project along the river that could mean several hundred million dollars of construction business to contractors in the U. S., Canada and Europe.

The award to the Oakland, Calif., firm followed a report by Kaiser Engineering Corp. that first stage of the hydroproject could be completed for $156 million. The report calls for a dam and generating plant with a capacity of 500,000 kw.

The power will be used for the production of aluminum. Ghana has extensive high-grade bauxite deposits close to the seacoast. Kaiser vice president Chad Calhoun, who, with Edgar Kaiser, negotiated the engineering survey with Ghana's Prime Minister Nkrumah, says Kaiser is an interested candidate for building the aluminum plants. Mr. Calhoun estimates the cost of initial plant production at $100 million to $150 million, depending on the number of plants built. The goal is an initial output of about 100,000 tons of aluminum per year.

Potential development prospects beyond aluminum are bright, Mr. Calhoun feels. Ferromanganese production is one good bet because of Ghana's accessible manganese deposits. Electric smelting of nearby Liberian iron ore is also a prospect, he says.

Kaiser recommends that the dam be located at Kosombo, one mile downriver from the site proposed in an earlier report and about 50 miles from the Volta's mouth.

Design of the dam would take 18 months. Another four years would be needed for construction before first power could be delivered.

A distribution system to bring the power to the industrial and population areas near the coast will cost another $28 million.

Plant output would ultimately be increased to 750,000 kw with the addition of two more generators. Future construction would include two more dams bringing total power generated from the Volta to 1 million kw.

Under the contract Kaiser will provide preliminary designs for the dam and powerhouse, build roads to the dam site from some 50 miles away, construct housing for engineering crews and further explore the dam site.

The Volta power project has been under consideration for several years but financial difficulties have held up construction.

Now Ghana is putting up $56 million toward the cost of the dam. It is preparing to send a financial delegation to the U. S. shortly to seek financing of the remaining $100 million from the World Bank and the U. S. Development Loan Fund.

Around the World . . .

• **Yellow centerlines**—Latest word is that Wyoming will use white centerlines on its Interstate highways, yellow on other roads. This should satisfy U. S. Bureau of Public Roads requirements for white lines and state law for yellow.

• **Site saturation**—Developers will build a 10-story, 250-bed hotel, a 600-seat concert hall and a 26-story skyscraper—all on a two-acre site in Manchester, England. All three buildings will be on top of a two-story shopping center designed to cover the entire site.

• **Fast cast**—Concrete crews topped out a 16-story reinforced concrete dormitory in just 50 working days for Long Island University in Brooklyn, N. Y. The $2.6-million dormitory was started in January and will be finished by next fall.

• **Prefab production climbs**—Factory-built housing units represented 11% of the 977,300 single-family home starts last year. Production of 110,080 prefabricated units was 18% above 1957 production.

• **New Toronto subway**—Work will start in June on the first two miles of Toronto's second rapid-transit subway system. The complete, 9.5-mile east-west subway in the east end of the city is expected to take 10 years to finish and cost $201 million.

• **Conviction reversed**—The Pennsylvania Superior Court has voided the conviction of suspended Turnpike Commissioner G. Franklin McSorley. It could find no evidence of "corrupt motive" in Mr. McSorley's providing a chauffeur for a former commission chairman. Mr. McSorley can return to his post.

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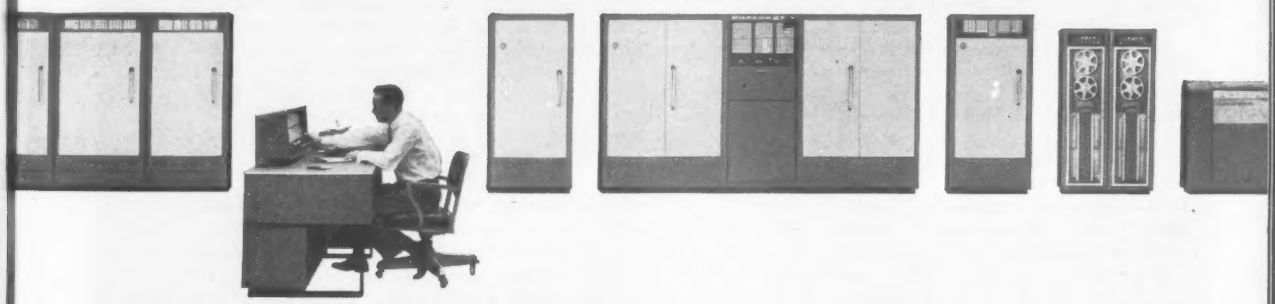

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The 'Old Timers'—And How They

The 117 Oldest Contractors . . .

1818—J. L. Simmons Co., Inc., Chicago.
1827—Mason & Hanger—Silas Mason Co., Inc., N. Y., N. Y.
1830—*Guy F. Atkinson Co., San Francisco.
1838—Sollitt Construction Co., South Bend, Ind.
1840—William L. Crow Construction Co., N. Y., N. Y.
1844—C. W. Blakeslee & Sons Inc., New Haven, Conn.
1844—Dunbar & Sullivan Dredging Co., Detroit, Mich.
1844—*James Stewart & Co., Inc., Falls Church, Va.
1848—Thomas Crimmins Contracting Co., N. Y., N. Y.
1848—John Flood & Sons Ltd., St. John, N. B., Canada.
1852—Hugh Nawn, Inc., Boston.
1854—B. G. Coon Construction Co., Luzerne, Pa.
1855—The Weitz Co., Inc., Des Moines.
1858—The Trimble Co., Pittsburgh.
1860—*Merritt-Chapman & Scott Corp., N. Y., N. Y.
1861—Struck Construction Co., Inc., Louisville.
1864—H. Wales Lines Co., Meriden, Conn.
1865—*Hunkin-Conkey Constr. Co., Cleveland.
1867—American Dredging Co., Philadelphia.
1868—Henry Shenk Co., Erie, Pa.
1869—Pacific Bridge Co., San Francisco.
1869—George W. Rogers Construction Corp., N. Y., N. Y.
1872—*American Bridge Div., U. S. Steel, Pittsburgh.
1873—*Fruin-Colnon Contracting Co., St. Louis.
1875—A. Bentley & Sons Co., Toledo, Ohio.
1875—Eichleay Corp., Pittsburgh.
1875—Foley Bros. Incorporated, St. Paul, Minn.
1875—*Winston Bros. Co., Minneapolis, Minn.
1876—Booth and Flinn Inc., Pittsburgh.
1878—The Austin Co., Cleveland.
1882—*George A. Fuller Co., N. Y., N. Y.
1882—*United Engineers & Constructors, Inc., Phila.
1883—H. Schmitt & Son, Inc., Milwaukee.
1884—*The Arundel Corp., Baltimore.
1884—*Peter Kiewit Sons' Co., Omaha.
1885—Foster Creighton Co., Nashville.
1885—*Perini Corp., Framingham, Mass.
1885—Frank L. & Charles E. Whitcomb, Inc., Boston.
1888—Comte Construction Co., Toledo.
1888—Weldon Contracting Co., Westfield, N. J.
1889—Hoggson Brothers Inc., N. Y., N. Y.
1889—Puget Sound Bridge & Dredging Co., Seattle.
1890—*Stone & Webster Engineering Corp., Boston.
1891—Dravo Corp., Pittsburgh.
1892—Baker and Coombs Inc., Morgantown, W. Va.
1892—W. M. Bogart Co., Charlestown, Mass.
1892—J. P. Cullen & Son, Jamesville, Wis.
1893—George M. Brewster & Son, Inc., Bogota, N. J.
1893—Cameron, Joyce & Co., Keokuk, Iowa
1893—Chas. B. Johnson & Son, Inc., Chicago.
1894—Aberthaw Construction Co., Boston.
1894—H. G. Christman Constr. Co., Inc., S. Bend, Ind.
1894—*J. A. Jones Construction Co., Charlotte, N. C.
1895—*H.R.H. Construction Corp., N. Y., N. Y.
1895—J. Rich Steers, Inc., N. Y., N. Y.
1896—McWilliams Dredging Co., New Orleans.
1897—Raymond International, Inc., N. Y., N. Y.
1897—Westlake Construction Co., St. Louis, Mo.
1898—*Bechtel Corp., San Francisco.
1898—Gahagan Dredging Corp., N. Y., N. Y.
1899—Atlantic Gulf & Pacific Co., N. Y., N. Y.
1899—Norfolk Dredging Co., Norfolk, Va.
1899—Thompson-Starrett Co., Inc., N. Y., N. Y.
1899—*Walsh Constr. Co., N. Y., N. Y.
1900—*M. W. Kellogg Co., N. Y., N. Y.
1900—Lummus Co., N. Y., N. Y.
1900—David T. Riffle Inc., Pittsburgh.
1900—Frederick Snare Corp., N. Y., N. Y.
1900—*Utah Construction Co., San Francisco.
1900—Warren Brothers Roads Co., Cambridge, Mass.
1901—Bates & Rogers Construction Co., Chicago.
1901—Foster Wheeler Corp., N. Y., N. Y.
1901—T. Stuart & Son Co., Watertown, Mass.
1902—The George F. Driscoll Co., N. Y., N. Y.
1902—*Turner Construction Co., N. Y., N. Y.
1904—George B. H. Macomber Co., Boston.
1905—*Ebasco Services Inc., N. Y., N. Y.
1905—*S. J. Groves & Sons Co., Minneapolis.
1905—Masters & Mullen Construction Co., Cleveland.
1905—Arthur G. McKee & Co., Cleveland.
1905—Standard Dredging Corp., N. Y., N. Y.
1906—Bryant & Detwiler Co., Detroit.
1906—Bulley & Andrews, Chicago.
1907—A. H. Haeseler Building & Contr. Co., St. Louis.
1907—Koppers Co., Inc., Eng. Constr. Div., Pittsburgh.
1907—John Lowry, Inc., N. Y., N. Y.
1908—*Bethlehem Steel Co., Constr. Div., Bethlehem, Pa.
1908—Henry Busse Inc, Pittsburgh.
1909—Gerhardt F. Meyne Co., Chicago.
1909—Nello L. Teer Co., Durham, N. C.
1909—W. E. Wood Co., Detroit.
1910—General Construction Co., Seattle.
1911—Consolidated Engineering Co., Inc., Baltimore.
1911—Sam W. Emerson Co., Cleveland.
1911—Flagler Co., Atlanta.
1911—Charles H. Tompkins Co., Washington, D. C.
1912—*Fluor Corp. Ltd., Los Angeles.
1912—*Johnson, Drake & Piper, Inc., Minneapolis.
1912—Landau Brothers Building Co., Pittsburgh.
1912—*Morrison-Knudsen Co., Inc., Boise, Idaho
1913—Gamble Construction Co., St. Louis.
1913—*Robert E. McKee, Gen. Contr., Inc., El Paso, Texas
1913—Woermann Construction Co., St. Louis.
1914—Kaiser Eng. Div. of Henry J. Kaiser Co., Oakland.
1914—Koss Construction Co., Des Moines.
1914—Krahl Construction Co., Chicago.
1914—*MacDonald Constr. Co., St. Louis.
1915—Samuel Braen Companies (in 12 cities)
1915—John W. Cowper Co., Inc., Buffalo, N. Y.
1915—J. H. Pomeroy & Co., Inc., San Francisco.
1916—*Frazier-Davis Construction Co., St. Louis.
1916—Massman Constr. Co., Kansas City, Mo.
1916—Walbridge-Aldinger Co., Detroit.
1917—Dickie Construction Co., St. Louis.
1917—Mellon-Stuart Co., Pittsburgh.
1918—Robert Black Co., Chicago.
1918—*L. E. Dixon Co., San Gabriel, Calif.

* Also on the top contractors lists, p. 21, 22.

Stayed Alive in Contracting

Contractors suffer from a reputation they don't deserve: Too often they are thought of as fly-by-nighters engaged in a risky and short-lived gambling game.

Nothing could be further from the truth.

Age is becoming an honorable characteristic of many contracting firms, an ENR survey shows. At least 14 U.S. companies are more than 100 years old. Another 103 have been active for more than 40 years.

Contracting is not a venture for gamblers or sleight of hand artists. The man who estimated a job by weighing its plans in his hand has long since left the scene—and he didn't stay long when he was on it. Today the successful contractor teams science with art—and while luck may be the referee, the game usually goes to the most skillful.

As in any free enterprise, there are hazards in construction—there are failures. And when a contractor folds, the losses are often great. Yet, though the stakes are big, the percentage of net return is small—even for the most exacting of firms. It is a tribute to the stability of the industry and the integrity of those in it that the failure incident stands as low as it does.

On a percentage basis within any given period of time, the failures of both manufacturing firms and retail organizations are greater than those of construction companies. Wholesaling is safer—but not by much. These facts were established by the last survey made by the U. S. Department of Commerce, Bureau of Economics.

To emphasize these points and to find out why they are so, ENR has developed a list of what are believed to be the oldest construction firms in the country (left).

The list contains the present names and headquarters of 117 firms known to have been in continuous operation for forty years or more. The "youngsters" were founded during World War I—the oldest has been a going concern since 1818.

Among the oldest are also many of the biggest. ENR's list of 1958's top contractors shows that 11 of the top 12 are also old timers. In all, 30 firms are on both lists. They are indicated by asterisks in the list. (For the top contractor list, see p. 21).

Many of the oldest firms not on the "biggest" list are still far from small. The patriarch of U.S. contractors, 141-year-old J. L. Simmons Co., was still aggressive enough to handle about $20 million worth of construction last year.

(*Turn the page*)

. . . And How They Did It

Richard B. Koss, Vice President, Koss Construction Co.
"The construction business is said to be especially hazardous. Our experience has not proven this to be true. Success in construction, as in any other business, is simply a question of good personnel and equipment and good business practices."

J. G. Snelgrove, Assistant to the Vice President, J. H. Pomeroy & Co., Inc.
"Years ago the contractor was a tremendous gambler. Today the construction business has changed. The gamble has been reduced immeasurably. New methods, modern equipment, well engineered plans and specifications have resulted in a reduction of risk—and also in a decreasing in the profits. In today's market the constructor has to be a businessman, a financier, a lawyer, an engineer and a production man."

Charles H. Tompkins, Jr., Vice President and Treasurer, Chas. H. Tompkins Co.
"The success of our company has not been due to any clear vision of the needs of the future. It has been due to the character and rugged individualism of its founder, Mr. Charles H. Tompkins, who died in 1956, and to a combination of hard work, satisfactory investments and good luck."

Robert E. McKee, President, Robert E. McKee General Contractor, Inc.
"The secret of this business, if there is any, is, first of all, to have good reliable men on the outside, persistent and hard workers on the inside, with adequate supervision of all projects by good supervising engineers out of the home office."

George H. Atkinson, President, Guy F. Atkinson Co.
"A contractor must hold steadfastly and inflexibly to his principles; he must at the same time remain most flexible in the conduct of his operations so that he can adjust to new situations as they occur. The contractor who sticks only to normal methods, older types of equipment and traditional approaches to construction problems is usually already on the downgrade. Rather than teach our young fellows to do things as they have always been done, we try to encourage them to gain basic information and then to think matters out for themselves."

Francis Donaldson, Vice President, Mason & Hanger-Silas Mason Co., Inc.
"The long, successful record of the companies originated by Claiborne Mason in 1827 has been due to the fact that at all times they have been headed by a man who understood the construction business in its changing phases—a man wise enough and fortunate enough to obtain as associates able executives, clever engineers or competent financiers—men who had not only ability, particularly the ability to devise new methods, but also the courage to apply them as required."

R. T. Hennes, The Lummus Co.
"The science of industrial engineering has played a prominent role in manufacturing during the last decade; it is an outstanding factor in industry's ability to meet highly competitive markets with quality products at a low cost. Now the construction industry is employing certain industrial engineering techniques to lower their costs. Among these techniques are: better work methods, scheduling, organizing and control."

James Cameron, President, Cameron, Joyce & Co.
"The first requisite for survival and growth in the construction industry is to have overall confidence in the general economic growth of the nation in all respects. Next is the procurement of executive personnel. If we can secure and keep men of integrity, ability and drive, the problems which are always with us, such as costs, profits, methods and labor relations, can be taken in stride and solved.

John W. Rogers, Vice President-Treasurer, Bates & Rogers Construction Corp.
"The success of Bates & Rogers Construction Corp. is based on a few fundamental principles. 1. Proper analyzing of the job before bidding. 2. Careful estimating based on good cost record and experience. 3. Close supervision. 4. Efficient job operation carried out by capable and loyal, long-time employees. 5. Good relationships with owners and labor. 6. Keeping current with methods and equipment, always seeking improvement. 7. Keeping close control of purchases and financing. 8. Finally, but most important, a figured profit in the bid."

Playroom at Tokeneke Elementary School, Darien, Connecticut. ***Architects:*** **O'Connor and Kilham, New York City.** ***Structural engineers:*** **Throop and Feiden, New York.** ***Mechanical engineers:*** **Joseph P. Wohlpart Associates, New York.** ***General contractor:*** **George L. Hickey, Inc., New York.**

Space provided: 16 classrooms, kitchen and Common Room, covered play room, administrative suite, library, interior courtyard. ***Pupil capacity:*** 520. ***Structural framing:*** glulam beams spaced at 7'-9" for classrooms; glulam beam-and-column bents for Common Room and covered play room. ***Exterior walls:*** brick with concrete block in service areas; cyprus siding in play room. ***Interior walls:*** plastic coated fabric walls in classrooms, Common Room and halls. ***Heating and ventilating:*** radiant floor panel system, zoned and thermostatically controlled. Exhaust fans in classrooms, toilet rooms and kitchen. ***Lighting:*** semi-indirect fluorescent. ***Roof surface:*** tar and felt with white gravel surface; translucent panels over playroom and covered walks. ***Floors:*** vinyl asbestos tiles on concrete slab over insulating concrete fill and moisture barrier. ***Volume:*** 300,000 cubic feet. ***Area:*** 28,000 square feet. ***Cost per sq. ft.:*** $14.40.

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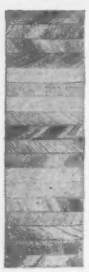

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Dean of Contractors—Guy F. Atkinson has been a construction man for 69 years.

Mason & Hangar–Silas Mason Co., Inc. at 132 years, regularly takes on some of the nation's top projects. Sollitt Construction Co., a going concern for almost a century and a quarter, grosses $8 million to $20 million annually and for the last five years has averaged $14 million. And these are but a few examples of old firms that are big by modern standards.

ENR's survey points up a number of significant facts:

• **Construction is often a family affair.** Of the 14 firms over 100 years old, at least eight are still owned and operated by descendants of the founders, two others have men from the original family as officers, and in another, the last surviving descendant was active until just three years ago.

For 141 years, a Simmons has headed the J. L. Simmons Co. Guy F. Atkinson, 84-year-old dean of U. S. contractors, who is still active in the firm founded by his grandfather in 1838, had a great grandfather who was a contractor in England during the late 1700's. Since 1849 the William L. Crow Construction Co. has been headed by the oldest son of each of four generations.

For a majority of the firms listed, second, third and fourth generation company heads are not uncommon—in a few cases the fifth generation is being groomed to take over.

• **Men make a company succeed.** As Wilburn F. Creighton, Jr., president of the Foster Creighton Co. says, the status of the construction industry "was not won by weaklings but by rugged individualists who could survive and in fact thrive on a highly competitive system." And this is only part of the role played by men in the success of an individual construction company and the advancement of construction as an industry. Machines, materials and methods are constantly changing and the firms that prosper are those which maintain on their staffs men with the talent, the energy and the adaptability

Competition is trying to confuse you about CASE® TERRAMATIC® DRIVE

POWER-SHIFT? ...WHO NEEDS IT?
INDEPENDENT DRIVE ON EACH TRACK? ANOTHER GIMMICK!
SOUNDS GOOD...BUT WILL IT STAND UP?
TREMENDOUS PUSH-PULL POWER? ...WE'VE GOT IT, TOO!
NO CLUTCHING OR SHIFTING? SO WHAT, WE HAVE AN IMPROVED CLUTCH!
ANYWAY, WHO WANTS A CRAWLER TO HANDLE AS EASY AS A NEW CAR?

HERE IS THE TRUTH...

No matter what you may have heard...
Here are the answers to your questions about
CASE® TERRAMATIC DRIVE

What is Terramatic Drive?

It is an ingenious "marriage" of an exceptionally efficient torque converter, with 4-speed, constant-mesh, gear transmission, which is actuated by hydraulic clutches and controlled by simple hydraulic valve-levers.

What are the specific advantages of the Terramatic Transmission?

It gives you *effortless power-shifting* from forward to reverse, or from one speed to another — without clashing gears. It also provides greatly increased ease of maneuverability because each track is *independently* power-driven by a separate set of hydraulic clutches. Operator can either *stop* one or both tracks with powerful double-disc hydraulic brakes . . . flip one track control-lever into *high* and the other into *low* speed . . . or run one track *forward* and the other track *reverse* at same time.

What are the functions of the torque converter?

The torque converter, in reality, is a *secondary* hydraulic transmission, with an *infinite* number of speed ratios. It senses the load . . . instantly and automatically increases push-pull power up to 100% as needed — *without clutching, shifting or stalling.* It also "cushions" jolting shocks, keeps engine and hydraulic pump running at *full rpm — regardless of load* — to insure maximum efficiency in operating bucket or dozer blade.

Does Terramatic Drive actually increase crawler output?

Yes. Certified owner reports indicate that, on *comparable* digging and dozing jobs, the 80 and 100 HP Case crawlers, with Terramatic Drive, are consistently outproducing competitive clutch-type rigs by as much as *50%*.

Does Terramatic Drive cost more to operate?

No. Because the torque converter operates *automatically*, travel speed and working load are always in perfect balance, for *greatest possible work output per hour and per gallon of fuel.* Operator never has to "gun" the engine, slip the clutch, or "guess" whether he is in the right gear for most efficient operation. It's all automatic!

Does Terramatic Drive reduce operator fatigue?

Yes. Compared with conventional clutch-type crawler tractors, the torque converter alone *eliminates up to 300 back-straining pulls per hour* on a stiff clutch-lever. In addition, smoother riding qualities, plus power-steering and convenient foot throttle help keep operator working steadier, happier, with less fatigue.

Will the Terramatic Transmission stand up as well as a conventional gear transmission?

Yes, even better. In fact, as a result of more than 2 years of field experience, on thousands of construction, mining and logging jobs, J. I. Case Company now issues a *full year service warranty* on the Terramatic Transmission used in all Case Model 800 and 1000 crawlers. This is *double* the warranty offered by any other manufacturer of tractor transmissions.

We hope your questions have been answered and that you now have a better understanding of why

CASE Terramatic Drive performance and convenience can't be matched

Only Case Terramatic Drive gives you all 3

No other crawler manufacturer can offer you the *combination* of features available in a Terramatic Drive tractor. This job-proved drive not only offers a fully *automatic* torque converter, it also gives you the *added* advantages of instant power-shift and independent track control, for increased speed and maneuverability.

1 FULLY AUTOMATIC TORQUE CONVERTER FOR DOUBLE THE PUSH-PULL POWER

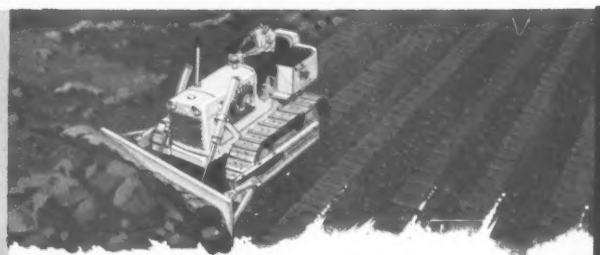
Job-proved Case Terramatic Drive senses the load and increases torque up to 100% — instantly, precisely, automatically — as needed. No clutching, no shifting, no stalling. You automatically operate in highest possible working range.

2 INSTA… FOR H…

You ch… gears. R… ers. Ea… give op…

2 INSTANT POWER-SHIFT FOR HIGHER OPERATING SPEEDS

You change speeds or direction on-the-go, without clashing gears. Reverse speeds are twice as fast as conventional crawlers. Easy-working hydraulic controls and handy foot-throttle give operator positive, effortless control at all times.



3 INDEPENDENT TRACK CONTROL FOR UNPRECEDENTED MANEUVERABILITY

Operator can make conventional pivot-turns, power-turns, or counter-rotating turns, merely by flipping hydraulic levers, or by touching hydraulic foot brakes. One hand is always free to operate loader or dozer controls.

Get PROOF that

CASE®

Terramatic® Drive

doubles push-pull power... instantly... automatically

gives unprecedented speed and handling ease

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You be the sole judge. Prove to your own satisfaction . . . on your own job . . . doing your own work . . . that a modern 80 or 100 HP Case crawler, with Terramatic Drive, can do up to *50% more work* than any conventional crawler in its price range. ACT NOW! Make a demonstration date today.

short of cash? don't let that stop you!

Your nearby Case Industrial Dealer will gladly arrange an easy monthly financing or lease plan, with seasonal skip-payments, to fit your budget. See him today.

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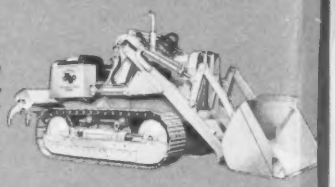
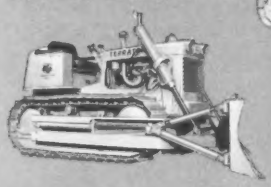
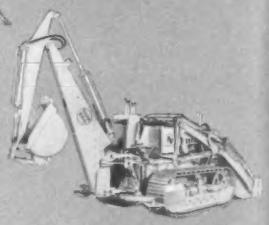


1000 100 HP* Diesel with exclusive Terramatic Drive, torsion-bar suspension, automatic track lubrication.

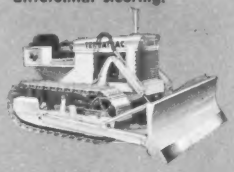


800 80 HP* Diesel with exclusive Terramatic Drive, torsion-bar track suspension, automatic track lubrication.



600 62 HP* Diesel or Gas, with torque converter, 4-speed hydraulic power-shift transmission and power-steering.

520 50 HP* Gas, or 45 HP* Diesel with torque converter, 3-speed gear transmission and improved total-contact differential steering.



420 42 HP* Gas with ferrometallic clutch, 3-speed gear transmission and improved total-contact differential steering.

M-3B 3500-lb. capacity fork lift, 9', 14'3" or 21'4" mast. 50 HP* Gas engine with torque converter, 3-speed gear transmission and improved total-contact differential steering.

420 47 HP* Gas with torque converter, 8-speed shuttle transmission, power-steering.

M-420 4000-lb. capacity fork lift, 9½', 14'3" or 21'6" mast. 47 HP* Gas engine with torque converter, 8-speed shuttle transmission and power-steering.

W-5 Terraload'r. 3000-lb. capacity, front-wheel drive, rear-wheel power-steer. 1-cu. yd. bucket. Gas engine with torque converter, shuttle-shift.

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W-9 Terraload'r. 6000-lb. capacity, 4-wheel drive, rear-wheel power-steer. 1¼, 1¾ or 2¼-cu. yd. bucket. Gas or Diesel engine with torque converter, power-shift, power-transfer differential.

*Gross engine flywheel H.P. sea level (calculated) max. H.P. (based on 60° F and 29.92" Hg). Mfr's. rating. Nebraska test not yet available.

to keep abreast of these changes, and do something about them.

• **The contractor must be an all-round man.** It is no longer sufficient for a contractor to be merely a craftsman in his field. As construction has become more complex, as the government has increasingly become a partner in any business venture, as labor union policies have become more restrictive, laws more complicated and money problems bigger, it has become imperative that the contractor be engineer, businessman, lawyear, financier and labor expert all rolled into one.

• **Stability with flexibility is a must.** As one contractor so aptly put it, the principles of integrity, responsibility and satisfaction in a job well done never change. But staying in construction—the most competitive of all businesses—requires both a continuous reappraisal of conditions and constant improvement of procedure.

• **Courage, luck, persistence, ability and a willingness to work hard and long are among the chief requisites for success.**

• **Unreasonable competition is the biggest problem facing the industry today.** Contracting is a feast or famine business and often, as now, famine sits beside the banquet table. The great increase of industrial, commercial, highway and airport projects has moved construction volume to unprecedented high ground. At the same time, profits for individual contractors have been reduced to an all time low.

The solution for this problem lies solely with the contractors themselves. Competition, probably more than any other single factor, has made construction great. It has forced the development of new machines, materials and methods—and contractors themselves do not want to see it eliminated. But the unreasonable competition is strangling the industry.

The most frequent charge made by established firms is that newcomers in the construction field fail to recognize the need for profits commensurate with the required investment, effort and hazards. This, they say, must change. W. J. Hunkin II, president of the Hunkin Conkey Construction Co. summed it this way: "We have a future ahead, how bright it will be depends on how bright we will be."

. . . What the 'Old Timers' See Ahead

Ambrose Burton, President, Aberthaw Construction Co.

"It is wise and necessary to plan for the future with the certainty that the building and construction business over an extended period is bound to expand."

John N. Flood, President, John Flood & Sons, Ltd.

"As long as young people continue to grow up and create new family groups (as they will) we are going to need more and better homes, schools, factories, roads, stores, cities, all of which involve construction in some form or other. However, the increased mortality rate among contractors shows that profit margins are too small. This condition stems from the competitive nature of the contracting industry and it can be cured only by a saner attitude on the part of contractors themselves."

J. G. McCurdy, Vice President, Puget Sound Bridge and Dredging Co.

"The future certainly appears exceedingly bright for the construction industry. But contracting is a highly competitive business and the casualty rate is high. The only survivors are the ones who carefully appraise a job, bid it intelligently and operate it well."

James E. Coombs, President, Baker & Coombs, Inc.

"In the next 25 years, far greater changes will occur in the construction industry than have taken place in the last hundred years. New industries, new processes, new horizons will require us to keep pace or to fade away. Companies that anticipate these things are the ones that will still be around 25 years from now. We must continue to take the chances that have always been a basic characteristic of our industry."

R. E. Salveter, President, Woermann Construction Co.

"New and improved materials, techniques, methods, procedures, and equipment generated and developed as an outgrowth of the competitive condition in construction will reduce costs and tend to counterbalance inflationary forces that face the industry."

W. Jack Close, President, Hoggson Brothers, Inc.

"For the future, we think that 'good design' is the key to lowering construction costs and providing better buildings. By 'good design' we mean simplicity and practicality in planning and economy in actual construction. It is the joint responsibility of the architect and the builder to take full advantage of new materials and to evolve new construction techniques."

A. R. LeFaucheur, Turner Construction Co.

"There will be an ever-increasing volume of construction in the years ahead, and the trend toward more complicated structures will continue. The builder of the future will be less and less concerned with bricks and mortar and more concerned with problems relating to air-conditioning, electronics and acoustics, etc. Thus, the major problem is the development of personnel with the technical skills to properly manage and coordinate this increasing volume of work with its increasing complexity."

R. A. Bateman, Kaiser Engineers, Division of Henry J. Kaiser Company

"The continuing increase in the world's population will bring both problems and opportunities to the engineer-constructor. As food and water requirements rise, man at last will be obligated to make use of his largest known source of water—the ocean. The purification plants for ocean water, conduits, canals and pumping stations, which will provide arid areas with potable water, will have to be built."

P. T. George, President, Gamble Construction Co., Inc.

"Our hopes of survival are based on an intensive program for the present with very little thought given to the future. We believe increased competition, lower and lower competitive pricing in the face of increasing labor and materials costs are, and will continue to be, the major problems facing all construction companies."

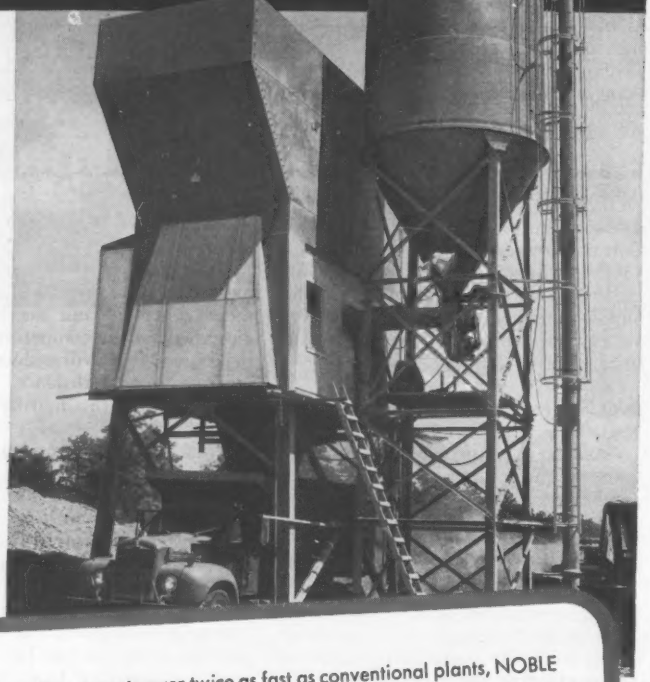
R. F. Conrad, Warren Brothers Co.

"The danger signals are up all along the line and creeping paralysis will overcome us if governmental control is allowed to increase. Taxation is rapidly becoming so burdensome that there is little incentive to leave earnings in a company to provide for growth. The industry will grow and prosper if allowed to make a fair profit on a job well done."

W. J. Hunkin, II, President, The Hunkin Conkey Construction Co.

"In spite of the obvious fact that a great construction boom lies ahead, we have three major problems to overcome: 1. Recognition by the newer and smaller contractors that ours is a high risk business and that financial return should be commensurate with the risk. 2. 'Buying' of subcontractors (bid shopping) is an insidious practice becoming more prevalent daily. It is natural, but it must stop while there are still some solvent and reliable subcontractors to work with. 3. Bonding companies that will bond anything that moves. They are hurting the industry more than any other single factor."

Mile-a-day highway paving record set with NOBLE 3B concrete batching plant



5,394 feet of highway paving setting a new 1-day record was supplied entirely by NOBLE 3B concrete batching plant. Two dual drum pavers pouring concrete every 30 seconds on relocation of Rhode Island Routes 2 and 3 depended on an uninterrupted flow of aggregates and cement. The 1150 batches required were batched and discharged by NOBLE 3B on schedule without a hitch! With overhead aggregate storage of 150 tons and separate overhead cement storage of 500 barrels, NOBLE 3B high speed output kept 8 dry batch trucks hauling materials in a steady stream to the paving site 7 miles away. Of all batching plants familiar to the contractor, **Campanella & Cardi,** in its ready-mix concrete division, NOBLE 3B was selected for highest productivity, consistent quality and reliable, economical operation.

NOBLE 3B

3 batchers (2 for aggregates, 1 for cement) weigh materials simultaneously for a *single* batch.

Batching quality concrete over *twice* as fast as conventional plants, NOBLE 3B keeps pace with fast-moving paving jobs. Sub-assembled at factory, it is transported rapidly to job site and quickly erected with no outside purchase of essential components or extensive field assembly and wiring. A pair of 3B plants set up as a dual twin-driveway *single-stop* plant for air-field construction when highest output is required can later be split into 2 complete plants for separate highway paving jobs in *1-stop* or *2-stop* set-ups controlled by a single operator.

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Light framing meant less steel for the roof—a substantial saving on a big roof.

Plastic Design Cuts Grocery Bill

The largest steel-frame building designed with the plastic theory is part of a new grocery distribution center covering nearly 10 acres in Omaha. Its a good example of the competitive effectiveness of this design tool.

On the $3-million Safeway Stores, Inc., project, plastic design won on a dollars-and-cents basis over laminated timber, prestressed concrete and conventional steel framing.

Safeway, which has carried out an extensive program of warehouse construction, lets building costs in each locality determine the type of material used. For the Omaha warehouse facility, laminated timber was the basic bid, with steel and concrete construction as alternates. The steel alternate, in turn, gave the contractor an option of either simple-beam construction or continuous framing, for which plastic design could be used.

The successful plastic-design bid of Lippert Brothers, Inc., of Oklahoma City, was $43,000 under the low laminated-timber bid. None of the contractors bid on conventional steel construction.

The plastic theory is a design tool so new in its field application that the American Institute of Steel Construction's manual on the subject has just recently been published. Only 30 or so buildings have been constructed in the U. S. using this design method.

The new concept is chiefly applicable to single-story structures. It takes advantage of the ductility of structural steel in continuous framing. It envisages loading carried beyond the point of elasticity into the realm of plastic deformation to failure. With a safety factor applied to this ultimate load, smaller beams can be used than usually indicated by conventional plastic theory.

The one-story Safeway job is a good example of how this theory works. With columns spaced 25 ft c-c, interior columns and purlins were identical for both the simple-beam and plastic design options. Thus, steel economy was limited to the roof girders. But the roof is so large that the savings were substantial.

A typical beam under conventional design was 21 WF 73; plastic design substituted an 18 WF 50. On a simple-beam basis, the steel came to 982 tons; the plastic design required only 841 tons. This represented a saving of 141 tons.

One of the criticisms of continuous design is that material savings tend to be cancelled out by the higher cost of fabrication and erection. The Safeway job indicates that these objections may not be valid.

Gunnar Mossblad of the Omaha Steel Co., the steel fabricator, says that the greater fabrication cost of the Safeway job was negligible compared with the savings in material. In conventional simple-beam construction, girders fasten into the columns. In continuous construction, girders must be rigidly anchored to the columns or sit atop them, in either case possibly requiring expensive connection details. In the Safeway job, some girders were designed as continuous for as much as 474 ft.

Assemblers welded four vertical stiffener plates to the girder web at each support point. A plate was also welded to the girder bottom flange at each column to serve as a seat. Two plates were attached to flanges and webs at splices.

Erection wasn't complicated, either. M. S. Landers, Lippert's project superintendent, said placing the steel was as simple and fast as on a conventional job.

Splices were located in alternate spans at points of low bending stress. Crews placed the steel by setting cantilever girders on successive pairs of columns, then dropping in the closing sec-

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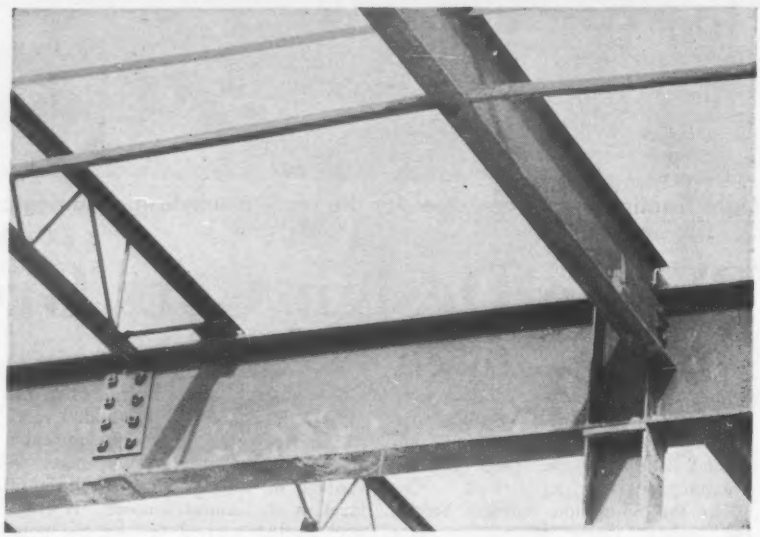
Large size of the warehouse made plastic design a real money saver.



These joints saved money too, builder says.

tions. The work was done with a truck crane equipped with a 55-ft boom.

The Safeway project, on a 46-acre site, will consist of three buildings. The grocery building covers five acres of floor space and is 473 x 456 ft. The perishable goods center, 268 x 788 ft, will warehouse meats, fresh fruits and vegetables and frozen foods. The truck repair and service building, 70 x 196 ft, will have complete facilities for maintenance, repair and washing of trucks.

All buildings are enclosed with precast wall panels of 3,000-psi concrete. Instead of casting the panels singly on the floor slabs, the builder cast them in stacks of five. Six-inch steel channel formed the sides of the casting beds and threaded inserts were cast into the slab edges. Forms for successive panels were held by brackets screwed into the inserts on the slab below.

Mechanical handling-equipment and humidity and temperature controls are unusually complete; of the $3 million total cost, $1 million will go for equipment. Other features include 24,300 sq yd of concrete-paved truck operating area and 4,000 sq yd of asphalt parking area. Two railroad spurs serve the center.

Construction began in September, 1958. Completion is scheduled for this December. Construction of the center is being handled by the Industrial Design Department of Safeway at Oakland, Calif. Frank G. Pringle is Omaha division manager for Safeway. Project construction manager for the firm is H. C. Alexander.

Design was by the Leo A. Daly Co. Don Roman, Daly vice president, was in charge. Technical assistance on plastic design came from William Milek, Omaha district engineer of the American Institute of Steel Construction.

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Engineers—erecting giant steel structures, creating wonders of functional beauty—solve their calculating problems with FACIT. Designed to perform with speed and accuracy, FACIT is as indispensable to the office worker as it is to the engineer on the building site. Multiplies, divides, adds, and subtracts—all—with only ten keys and the five fingers of one hand.

See your Classified Phone Book or write for the facts about the precision-built FACIT CALCULATOR for every use—both manual and electric.

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Here's help you can count on

On the opposite page is the third in the current series of advertisements created as a public service by the Cast Iron Pipe Research Association. It's aimed straight at Mr. and Mrs. America through the pages of the widely read *Reader's Digest* magazine.

Similar advertising appears regularly in *U. S. News & World Report, Nation's Business, Better Homes and Gardens, American Home* and *Sunset* magazines.

Every advertisement dramatizes the importance of pure, safe water for home and industry and emphasizes the growing seriousness of the water supply problem. Furthermore, these advertisements *give the reader something to do about it.*

Free Plan-for-Action Booklet

Every reader is offered a free booklet (illustrated on the opposite page) which describes ways for them to get the facts about the water situation in their own communities. A step-by-step outline of action is presented so that, armed with the facts, local citizens can get behind a broad program for extending and improving water service in their own areas.

The third item of assistance offered by the Cast Iron Pipe Research Association to those in the water supply field is a community relations portfolio, also illustrated opposite. It contains ideas and suggestions for public officials to use in their own community relations activities to bring adequate supplies of water to homes and industry in their towns. It tells how informed citizens and officials can work together for improved facilities and adequate rate structures or financing.

This program is already at work—for you. Its impact will be felt more and more as the months go by. For more information and a copy of the booklet, "Water—make sure you'll always have plenty," write to Thos. F. Wolfe, Managing Director, Cast Iron Pipe Research Association, 3440 Prudential Plaza, Chicago 1, Illinois.

THREE REASONS WHY CAST IRON PIPE IS *AMERICA'S GREATEST WATER CARRIER:*

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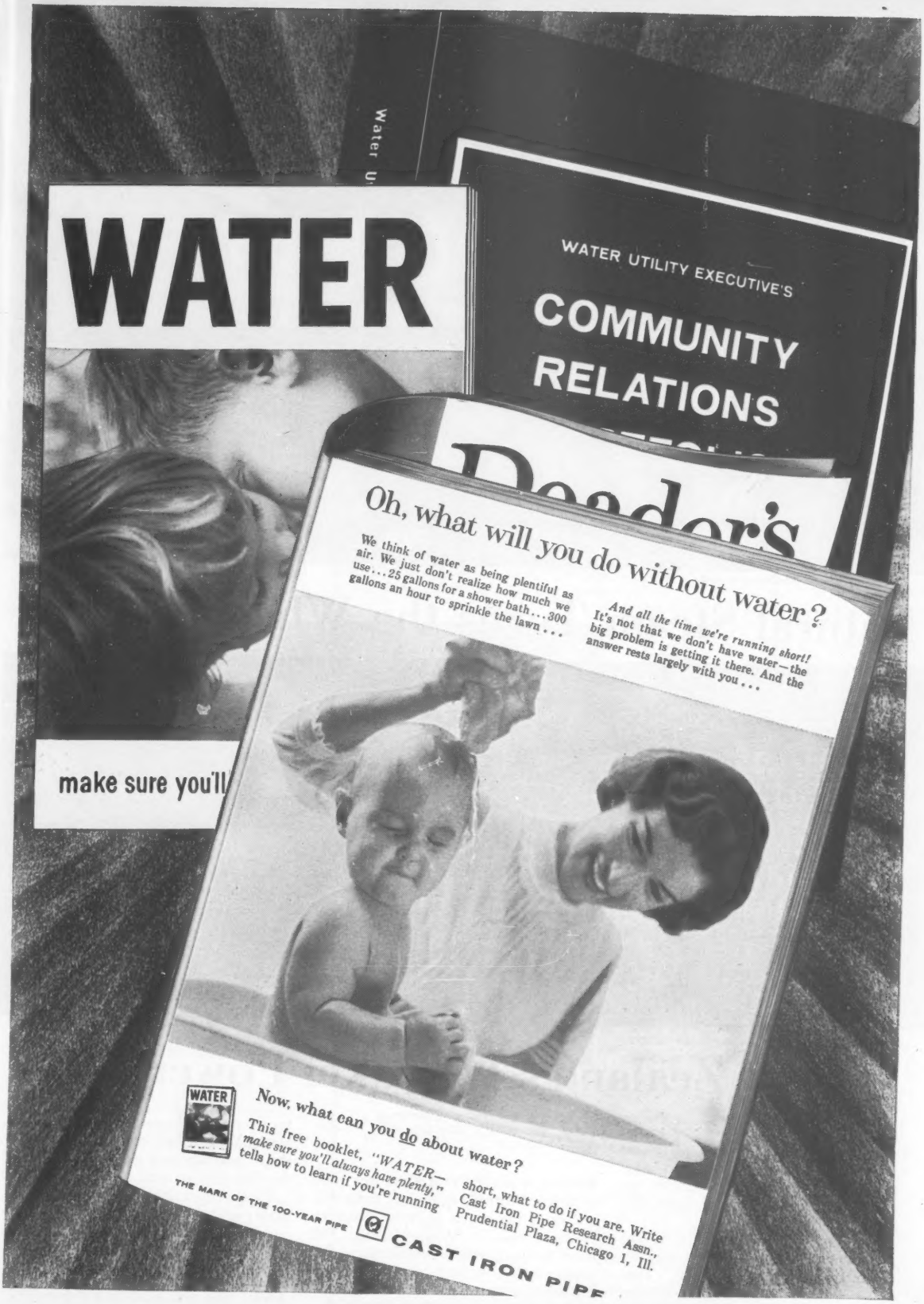
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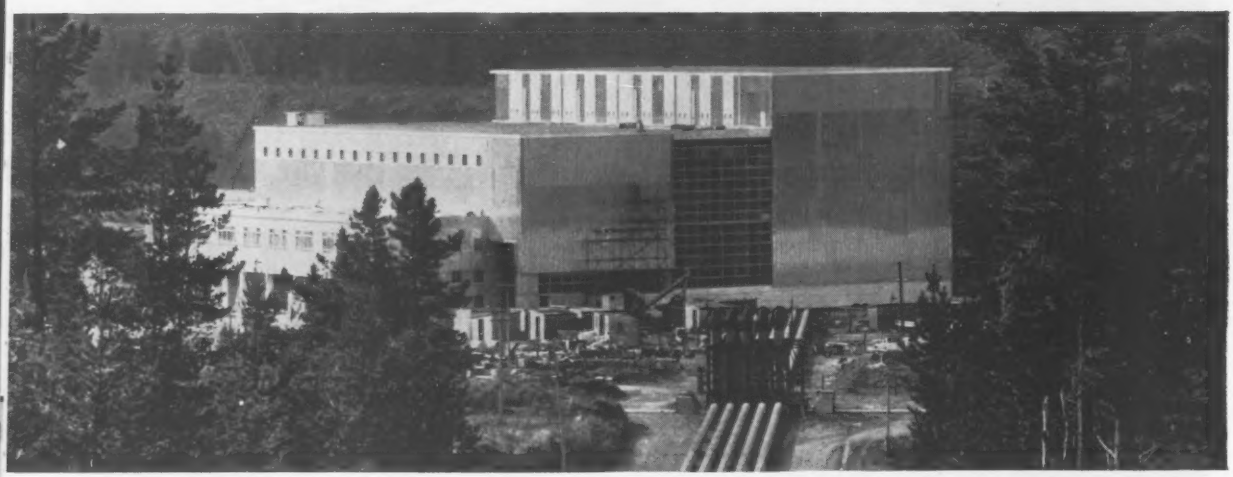

. . . New Zealand's Wairakei Power Plant

New Zealand's Wairakei geothermal power development is now partly on the line. It is the world's second large-scale electric generating plant with turbines powered by naturally produced steam.

The first of two powerhouses is now virtually complete. Three stages of development have been planned. They will eventually supply 252,600 kw. Total cost of the development will be about $60 million.

• **Power source**—Wairakei lies in a zone of thermal activity extending from volcanoes in the center of New Zealand's North Island to White Island, 150 miles to the northeast. Underlying the project area is a hard, dense rock formation of undetermined thickness, cleft by a number of nearly vertical fissures. Hot fluids are believed to rise through these openings and permeate overlying rhyolite and pumice breccia.

The product discharged at the power-plant wellheads is a mixture of steam and hot water, including various chemicals and gases, with a wide range of gage pressures.

Five main 20-inch lines pipe steam

Some Ideas

for your file of practical information on drafting and reproduction from

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One of the ways to judge a skilled craftsman is by the tools he uses. They're invariably the best he can find – chosen to lighten his work, sharpen his skills. And, if the craftsman is a draftsman, they are, more often than not, products of K&E.

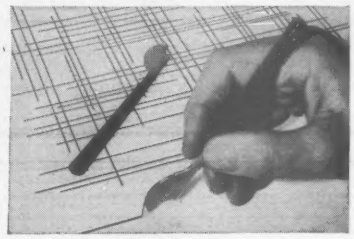
It may be that some of these products have escaped your attention (after all, we offer something over 8000 items). That's why we suggest you pay a visit to your K&E dealer whenever you can. It's a liberal education on what's new – as well as what's tried and true – in drafting equipment.

You'll find many products like these which can be highly useful in your work . . .

K&E "Quick Set" Bow Compass

The most remarkable feature of this compass is the speed and ease with which you can change settings—from diameters of 12 inches to 1/16 inch. With one hand, you can increase or decrease radii instantly and exactly. To go from small to larger radius, just press a spring release, and the legs will expand automatically. Stop approximately where you want, and make precise adjustments with a micrometer screw. To go from large to small, simply squeeze the legs of the compass together, then adjust precisely.

The K&E Quick Set combines the rigidity and precise adjustment of a standard bow compass, the simplicity and speed of a friction type compass, plus the finger tip control of K&E's unique design. You have to try the Quick Set to appreciate it fully. Two types are available. The N1071 fixed leg pencil compass, and the N1070 combination with interchangeable pen and pencil inserts. Both come with a box containing leads and spare needles. And with the N1070, a pen handle is provided for the pen insert which permits its use as a ruling pen. The compass can also be used as a divider by substituting one of the spare needle points for the lead in the pencil insert.

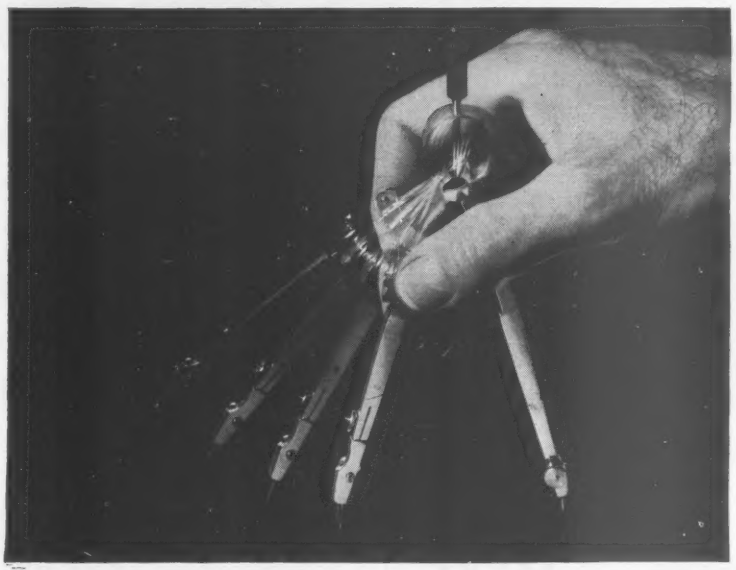


Marathon® Ruling Pens

K&E Marathon Long Line and Wide Line Ruling Pens (1092) hold an extra large ink supply – draw lines up to eight times longer than ordinary ruling pens. And because they are pre-set, line widths are always uniform, easy to match with complete accuracy. Ink flow is regular and even, lines are always sharp and clean edged.

An important feature of K&E Marathon Ruling Pens is that they will *not leak*. They can be laid on the work surface without risk of ink flowing out. That means you can fill several pens of different widths, use them as freely as you'd use pencils. They're easy to clean, too.

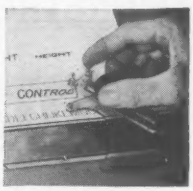
K&E Marathon Long Line Ruling Pens are available individually in line widths of .006, .009, .013, .020 inch – or in sets of three pens in line widths of .009, .013, .020 inch in a Leatherite case. Marathon *Wide Line* Ruling Pens come in line widths of .030 and .060 inch.



Leroy® Height and Slant Control Scriber

A versatile new Leroy scriber is now available which greatly expands the variety of lettering possible from a standard Leroy template.

Now, with the new Height and Slant Control Scriber (3237-12), you can form characters from vertical to slanting at any angle up to 45° forward. You can vary height from 60% to 150% of the size of letters on the template used. The width of letters remains the same.



Combinations of height and slant can be set quickly and easily. You just loosen the knob, move the scriber arm to the desired combination of height and slant, and tighten. That's all there is to it.

Stop in to see your nearest K&E dealer and ask to see these three products—small, perhaps, but mighty handy in the drafting room. Or drop us a line by mailing the coupon below . . .

KEUFFEL & ESSER CO., Dept. EN-4, Hoboken, N. J.

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- ☐ K&E Quick Set Compass
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from highlines

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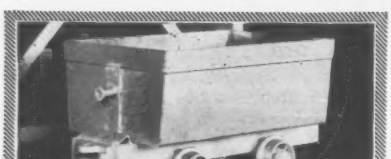

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. . . Wairakei

1½ miles from the wells to the powerhouse. There are also miles of 12, 8 and 6-inch branch lines.

Wairakei steam contains about 80% by weight of water with a relatively small content of chemicals, chiefly sodium chloride, silica, potassium salts and metaboric acid. Gases in the steam are mainly carbon dioxide with some hydrogen sulphide. Recovery of the chemicals seems unlikely at the moment, but the pressurized hot water will be a very important part of the total output later.

Turbine admission pressures are 180 psi, 50 psi and 0.5 psi.

Stage one of the project will entail the installation of two 6,500-kw high-pressure turbogenerators and five 11,200-kw units, two at intermediate pressure and three at low pressure.

In the second stage, two more 11,200-kw units—one high pressure and one low-pressure—and two 30,000-kw units will be installed. Low-pressure turbines installed at this stage will utilize the hot water from the wells. It will be flashed at the powerhouse by reducing the pressure.

In the third stage, one more 11,200-kw unit and three 30,000-kw units will be installed. Spare generators will be installed to fill in during outages.

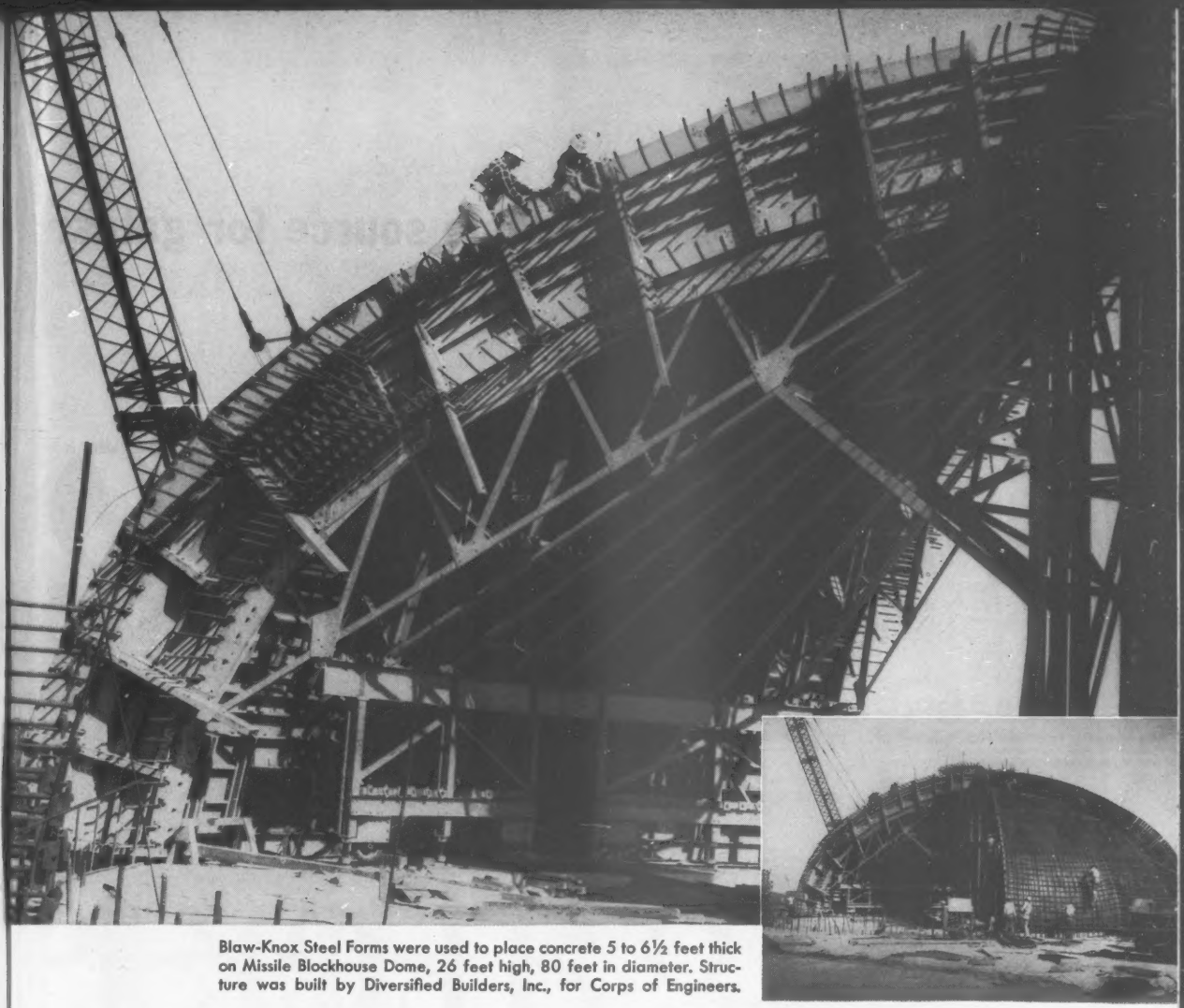
• **Oilfield methods**—Engineers and scientists at Wairakei have adopted modern oilwell-drilling techniques as well as the 50 years or so of experience gained in geothermal power at Larderello, Italy.

About 60 wells have been drilled up to now. Some 40 of them are suitable for production. They vary in depth from 560 to 4,000 ft, averaging about 2,000 feet.

Drilling methods conform closely to those used in oil production but are modified to meet the special needs of the project. Light, truck-mounted rotary-drill units were used for early exploration, but the greater part of the work now is being done by two U.S. rigs mounted on semi-trailers. The rigs have hinged telescopic masts, 95 feet long, with 80-ton capacity. Nominal depth range is 1,500 to 3,000 ft.

Drilling is done through the floor of a rectangular concrete wellhead cellar built at each bore site. Surrounding ground is consolidated by grouting.

A 16-in. surface casing is cemented to the hole walls, usually to a depth of about 60 feet. Within this and to a depth of from 300 to 400 feet, an 11¾-in. anchor casing is cemented in place. Production casing of 8⅝-inch nominal outside diameter goes within this anchor casing and extends from the surface to 1,000 to 2,000 ft below ground.



Blaw-Knox Steel Forms were used to place concrete 5 to 6½ feet thick on Missile Blockhouse Dome, 26 feet high, 80 feet in diameter. Structure was built by Diversified Builders, Inc., for Corps of Engineers.

Blaw-Knox Steel Forms used in construction of Cape Canaveral Missile Blockhouse Domes

Traveler-mounted forms sectionalized for removal through 6 x 8-foot personnel exits

1,900 cubic-yards of 3,750 p.s.i. concrete, 5 to 6½ feet thick, was placed in specially designed Blaw-Knox Steel Forms in the construction of each Missile Blockhouse Dome at the Air Force Missile Test Center, Cape Canaveral, Florida.

Concrete was placed first in a 5-foot deep, 12-foot diameter, central compression ring. Inside surface forms mounted on rubber-tire travelers, and fabricated in two 60-degree, "orange peel" shapes, 12 feet wide at the inside base and 1 foot wide at the inside crown, were set. Screw jacks under the 28-foot long travelers raised and lowered the forms. After pouring and curing, the travelers' wheels were set at an angle to allow the forms to traverse circumferentially to the next pour, thus completing the inside pours in three 120-degree sections. All inside surface forms and related framework, travelers, and falsework were disassembled in less than three days and removed through the 6 x 8-foot personnel exit.

Outside surface forms and bulkhead panel sections were positioned by truck-mounted cranes. Concrete was placed at the rate of 60 cubic yards per hour with two Blaw-Knox, 1-cubic-yard concrete buckets. The entire concreting operation was completed in 48 days.

Concreting of Missile Blockhouse Domes, like dams, bridges, and tunnels, can be merchanized to cut costs. Call Blaw-Knox Steel Forms Consultation Service early in your planning for an important engineering contribution to your project.

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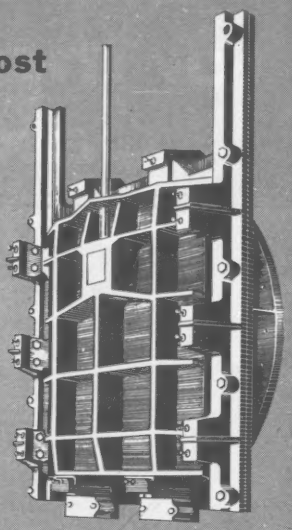

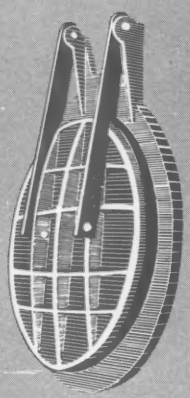

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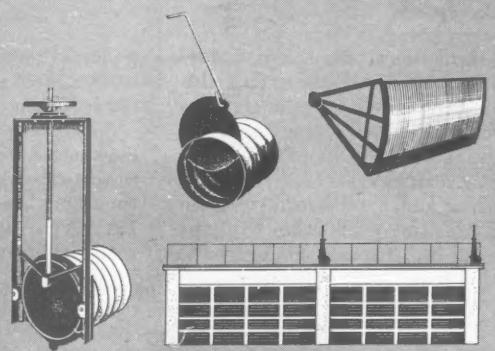
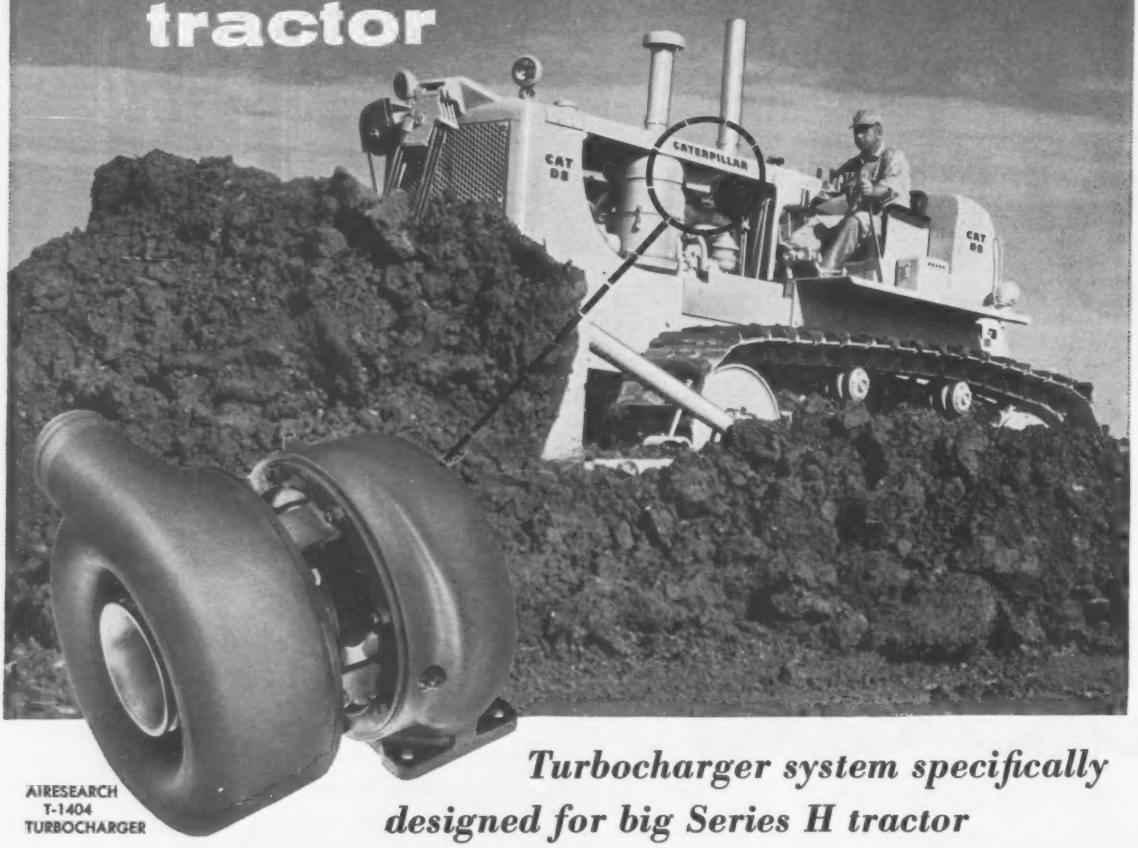


More horsepower for the new Caterpillar D8 tractor



AIRESEARCH T-1404 TURBOCHARGER

Turbocharger system specifically designed for big Series H tractor

A joint development of Caterpillar and AiResearch, the turbocharger system is an integrated part of the new D8 Series H tractor. Extensive field tests showed an increase of 20% in bulldozing and a substantial gain in pushloading production with the Series H... brought about by the tractor's greater horsepower, faster torque rise, greater weight and faster dozing and reverse speeds.

Specifically designed to match the new tractor's requirements, the new turbocharger underwent thousands of test hours on the new D8 operating in every kind of material on every kind of job.

AiResearch turbocharger advantages include: increased horsepower, improved lugging ability, cooler exhaust temperatures, reduced maintenance costs, less smoking and noise. This is another application of AiResearch turbochargers to heavy industrial machinery.

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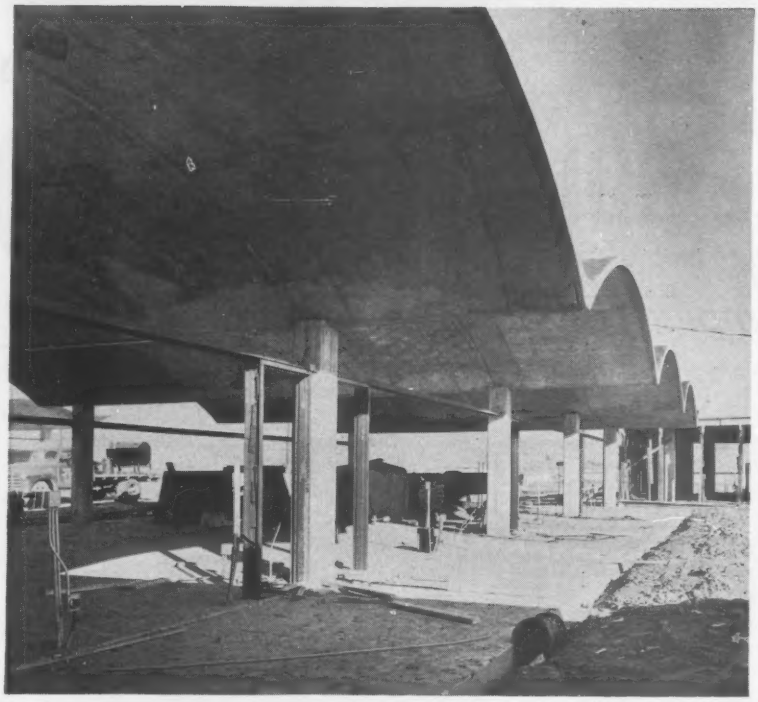
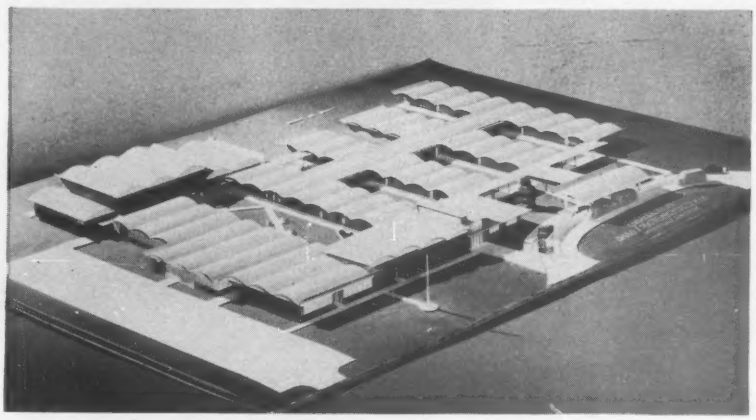


Concrete Barrel Arches . . .



. . . Cover A Low Cost School

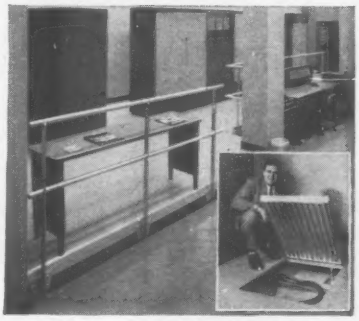
Shreveport, La., architects picked concrete barrel-arch construction as the most economical design for a new junior high school in that city.

The 66,200-sq-ft school is going up for only $10.80 per sq ft, including landscaping. Blair & Smith, the architects-engineers, say they studied several types before settling on this design.

Quick form turnover without reshoring was the main feature of the contractor's plans. Southern Builders, Inc. of Shreveport built the 24-ft-span arches with $\frac{3}{8}$-in. plywood form panels mounted on 2x10-in. ribs cut to the proper radius.

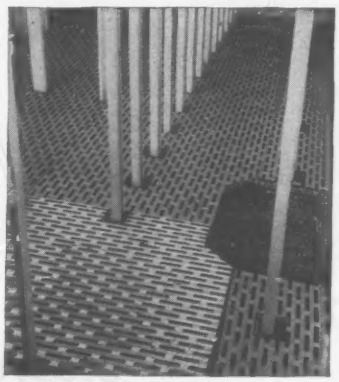
Only shores at the panel centers actually bore directly on the forms. At the panel edges, shores extended clear to the concrete; ledgers on the sides of these shores carried the weight of the panel edges. Jack Terrill, S-B vice president, says this way he could remove the forms three days after concreting; all the edge shores stayed in place, at 8 ft c-c one way and 4 ft c-c the other.

WASHINGTON ALUMINUM FLOORING FITS EVERY REQUIREMENT



RAISED PANEL FLOORING

Wherever equipment for industrial processing, data handling and computing must be installed, specify Washington Aluminum raised flooring. It can be perfectly leveled, regardless of subfloor. It's designed to support tremendous weight loads, yet the panels are light enough to be interchanged for relocation of equipment—even after cutouts have been made. Maintenance-free. Cabling, ducts beneath panels are easily accessible.



NON-SKID FLOORING

Wherever safe footing is desired, here's the answer. Upset design provides non-skid traction in all directions even under wet or greasy conditions. Exclusive I-Beam design rivals structural strength of steel at a fraction of the weight. Can be fabricated to any length or width; for any weight load.

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another world champion hits the construction field!

The new Le Roi 365 Rotary works on expressway construction in the shadow of Milwaukee County Stadium on opening day, 1958.

Delivers rated capacity at 1100 rpm —slowest speed rotary on the market!

You'll get new economy of operation — cheaper air — lower fuel and parts bills when you use the new Le Roi 365 Rotary for air power. That's because this brand new rotary loafs along at only 1100 rpm while delivering full rated 365 cfm at 110 psi. The results: Less wear and tear on the compressor, less frequent vane replacement—and a miser's grip on the fuel line!

Individually cast cylinders can be separately serviced or removed in-the-field without disturbing either tanks or piping. An accurate thermal by-pass on the compressor oil cooling system provides excellent oil temperature control. You get easy one-valve air pressure adjustment...and all filler caps and service valves are enclosed behind a sturdy, tamper-proof, lockable rear door. Contact your Le Roi distributor for complete information. Better yet, ask for a demonstration!

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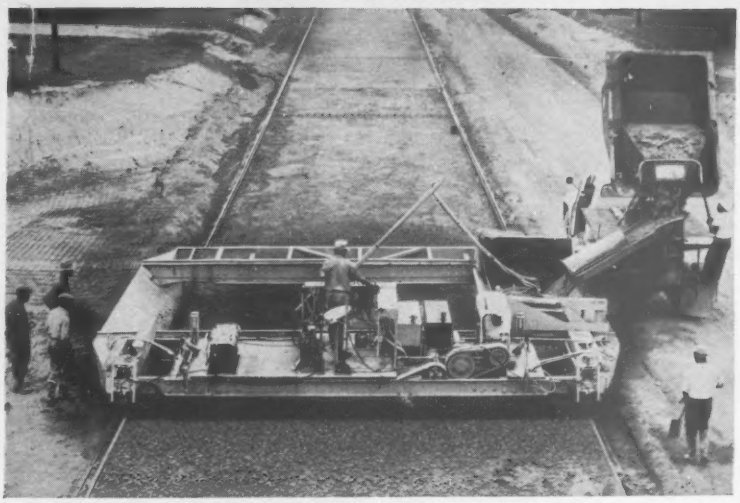

Traveling bucket takes concrete and spreads it.

Two More Concrete Spreaders

Two additional models of the Dumpcrete concrete spreader are now available.

A single-lane paving model lays slabs from 11 to 16 ft wide. A full-width unit lays slabs from 20 to 26 ft wide. They can be adjusted in 6-in. increments.

Basic operations of the Dumpcrete are: load, spread and move screed. The traveling spreader bucket can be loaded from either side of the road forms. It has a capacity of 5½ cu yd. A controlled bucket opening determines rate of flow. MAXON CONSTRUCTION CO., INC., 2600 FAR HILLS AVE., DAYTON 19, OHIO.

Self-propelled compactor can be used heavy or light.

Seven-Wheel Roller Weighs up to 33 Tons

Browning's self-propelled 7-wheel roller can be varied in weight from 11 to 33 tons.

At the heavier end of the scale, it is used for high compaction of base courses. At the light end, it can be used in seal-coating and bituminous concrete work.

All wheels of the pneumatic-tired compactor oscillate independently.

Standard equipment on the diesel-run roller includes water tanks, two steering wheels, two seats and two brakes.

Ballast box is open for easy loading. BROWNING MFG. CO., P.O. BOX 2707, SAN ANTONIO, TEX.

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Condensed Solutions for Structural Analysis

Shows how to save time in analyzing complex structures by using a new concept in solutions of frames and arches of constant or variable cross section. Gives over 400 condensed solutions for twenty principal types of statically indeterminate frames and arches—usable in steel, concrete, and wood design. Includes comprehensive tables and charts to facilitate analysis of haunched frames and arches. **By V. Leontovich, Civil Engr. 494 pages, 523 illus., $20.00**

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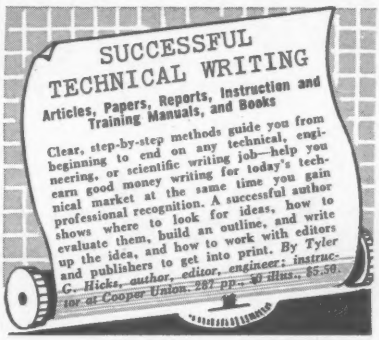
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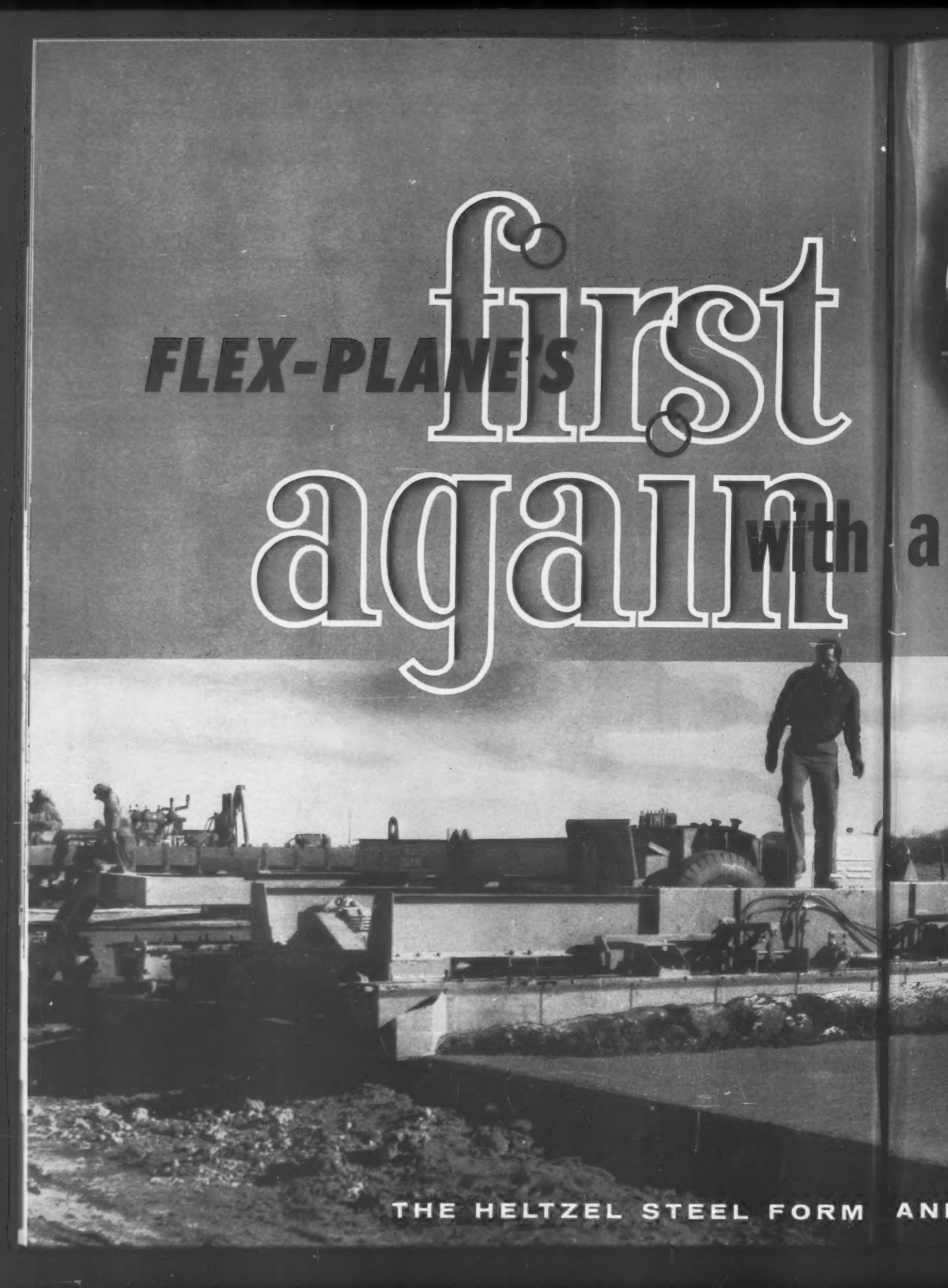
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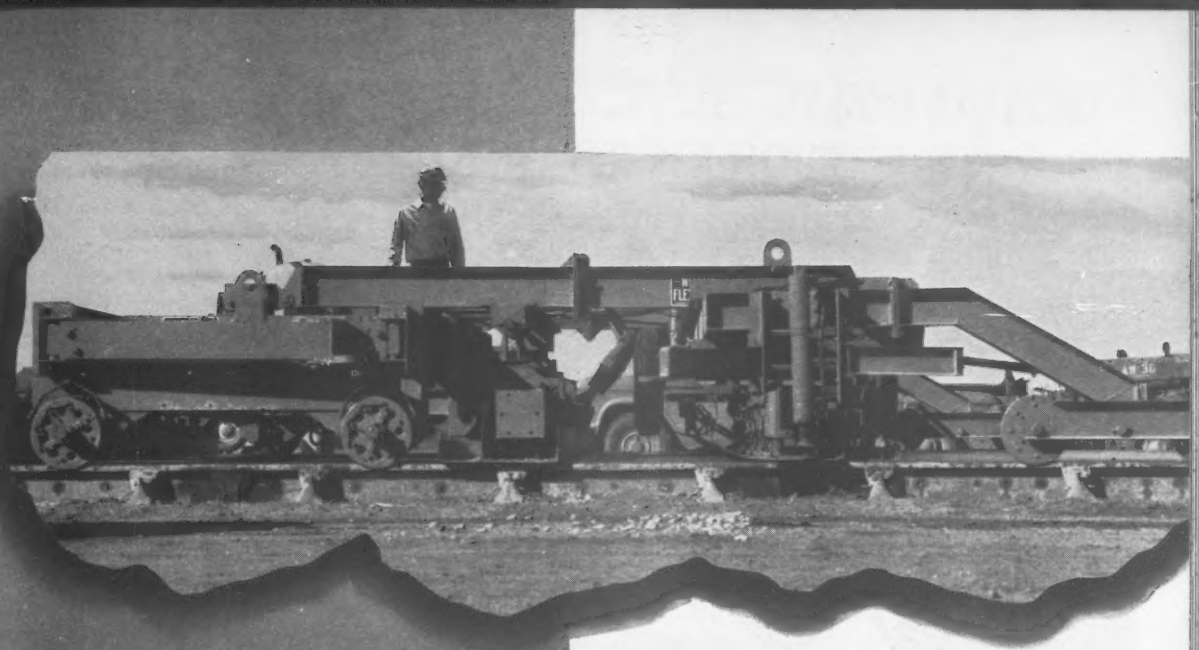
THE HELTZEL STEEL FORM AN



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It's the greatest advance in concrete finishing in a decade—Flex-Plane's revolutionary new Gas-Electric Finisher-Float machine that gives you substantially increased power and infinite control of both machine and screed speed, regardless of grade or concrete slump!

This means you can now set both machine and screed speed independently—quickly and easily adjust machine to achieve desired results.

What's more the new Finisher-Float is the most versatile machine marketed today. The finisher frame extends from 12′ to 26′, permitting finishing of everything from full width slabs to ramps and approaches. The finisher section is quickly detached from the float trailer for use on narrower width slab—eliminating the need for a second finisher. Both screeds and float pan are equipped with new extra quick, precision crown change mechanisms.

This great new machine takes the place of a single width finisher, a double width finisher, and a float. It coordinates and combines finishing and floating in one machine with a single operator. A single Flex-Plane combination machine easily maintained pace on the 1958 world's record highway pour. It produces a finish unexcelled in smoothness with a minimum of handwork. See it . . . talk with owners . . . get the facts before you buy and you'll buy Flex-Plane.
To get the facts contact the Heltzell-Flex-Plane distributor in your area or write direct.

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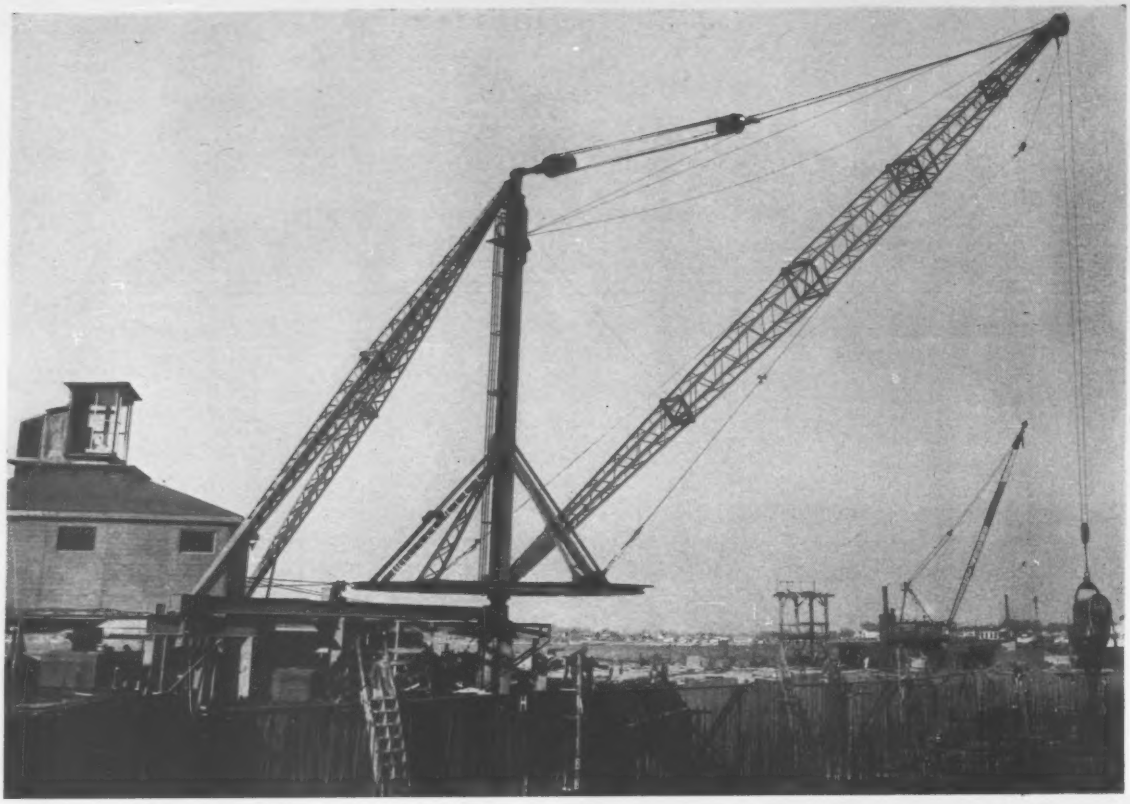

CLYDES MAKE BIG POUR AT THROGS NECK

On the Queens anchorage of the multi-million dollar Throgs Neck Bridge, New York City, a joint venture of J. Rich Steers, Inc. and Frederick Snare Corp., a Clyde hoist and derrick team up to place most of the concrete in the huge caisson.

The Clyde derrick positioned on the wall of the coffer-dam, has a 150 foot boom that enables it to cover almost the entire area of the 146 x 226 foot box.

A 21,000 pound line pull three drum Clyde hoist and an independent swinger provide ample power to handle the concrete bucket smoothly, rapidly and with complete safety.

The nation's leading contractors rely upon the unmatched value of Clyde equipment to keep materials moving on jobs that demand tight building schedules. Whether you have little yardage or a big pour; and occasional lift or a high speed rehandling program, it pays to take advantage of Clyde equipment.

It takes a lot of features to add up to a superior quality, work-hungry hoist and Clyde has all of them. All steel bed and side frames that provide exceptional ruggedness without excessive weight. Large diameter brakes and clutches that assure positive load control. Anti-friction bearings throughout for less maintenance and power consumption . . . these are but a few of the many advanced engineering details that have contributed to make Clyde hoists the very finest in the field for over 60 years. Clyde products are available in a wide range of sizes, styles and capacities to suit your particular material handling needs.

Write now, for a new Bulletin 34A that tells you why Quality is Always Foremost in Clyde Hoists.

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San Francisco Engineer Is City's Top Appointee

San Francisco's top appointive post has gone to a civil engineer for the first time in more than 25 years. Sherman P. Duckel, has been named chief administrative officer by the mayor. His salary is $24,000 a year.

Mr. Duckel will have jurisdiction over some 5,000 employees and 43 bureaus and departments. He will also be an ex-officio member of the board of supervisors and will attend meetings of the finance committee and planning commission.

Before assuming the new post Mr. Duckel was director of public works for nine years. He began with the city in 1927 as a street and sewer inspector.

Mr. Duckel succeeds Chester A. MacPhee. Other shifts following Mr. MacPhee's resignation include the advancement of Reuben H. Owens to director of public works and Clifford J. Geertz' advancement to the post of city engineer.

Interior Department Shifts Saline Water Personnel

Top personnel were reshuffled and the director's salary was upped in a reorganization of the Office of Saline Water by the Interior Department.

A. L. Miller was appointed the new director. The one time Nebraska Republican Congressman will be paid $14,190 instead of the former director's salary of $13,970.

David S. Jenkins, former director of the office, will be an assistant director.

Allen Cywin will be acting assistant director of demonstration plants.

Joseph J. Strobel will be chief of the processes developments division.

G. H. Henderson Retires After 47 Years' Service

George H. Henderson, chief engineer of the Division of Roads and Bridges of Rhode Island's Department of Public Works, retired after 47 years.

Daniel O. Cargill, former supervising civil engineer for bridges, will succeed Mr. Henderson as chief engineer.

Mr. Henderson served for 30 years as director of the Association of State Highway Officials of Northeastern States and 16 years as treasurer of the American Association of State Highway Officials. He is a life member of the American Society of Civil Engineers.

Although eligible to retire 15 years ago, he remained on the job at the request of the state.

REDA SUPPLIES 21,000 GALLONS OF WATER PER HOUR

for Kimbell Food Products Co. Fort Worth, Texas

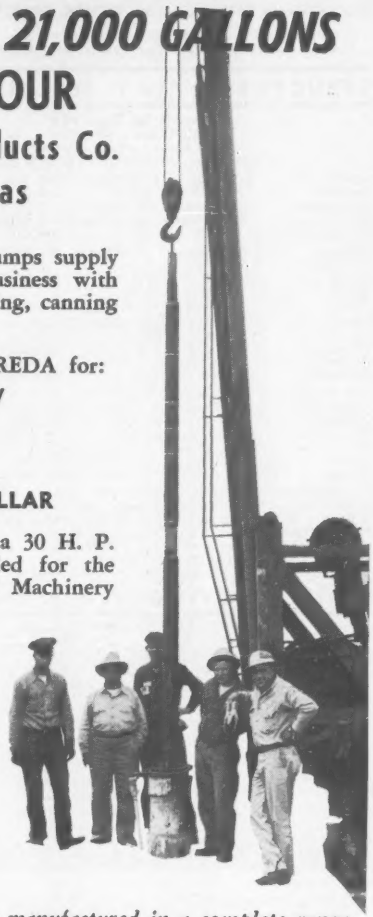
Three Reda Submergible Pumps supply this well known Ft. Worth business with plenty of water for food processing, canning and bottling operations.

The Kimbell people chose REDA for:

- **Dependable water supply**
- **Low Maintenance Cost**
- **Low Installation Cost**
- **Low Operating Cost**
- **MORE WATER PER DOLLAR**

The installation pictured is a 30 H. P. Reda unit, one of three installed for the Kimbell Company by the Well Machinery & Supply Co. of Ft. Worth.

INSTALLATION DATA:
PUMPING DEPTH: 452 ft. (water pumped to tower 110 ft. high)
CASING: 10-inch steel casing
POWER REQUIRED: 440 volts a. c., 3 phase, 60 cycle
MAXIMUM WATER REQUIREMENTS: 210,000 gallons per day
WATER SUPPLIED BY REDA: 21,000 gallons per hour
PUMPS INSTALLED: 30 H. P. Reda unit supplying 150 g.p.m.
22½ H. P. Reda unit supplying 100 g.p.m.
20 H. P. Reda unit supplying 100 g.p.m.



Reda Submergible Pumps are manufactured in a complete range of sizes from ⅓ to over 300 H. P., with capacities from 5 to over 1000 gallons per minute, from depths as great as 10,000 feet.

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BARTLESVILLE, OKLAHOMA
Manufacturers of submergible motors and pumps for over 35 years — for oil, brine and water wells, gasoline and jet fuel

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Materials and Labor Prices

Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES

- Cement, Aggregate, Ready mixed Concrete, Asphalt: Last, Apr. 9; Next, May 7.
- Iron and Steel Products, pipe: Last, Apr. 16; Next, May 14.
- Wood Products, Glass, Explosives, Chemicals: Last, Apr. 23; Next, May 21.

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED Per M. lots of 2,000 pieces or over, 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. in quantity Common backing	Straight hard	LIME Per ton, in paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized or lump
Atlanta	$170.10*pe*	$153.25*pkke*	$306.55*pe*	$344.85*pe*	.....	.....	$31.50*p*	$33.75*p*	$36.50*hh*	$28.50*hh*	$28.50*hh*
Baltimore	217.00	231.00	434.00	491.00	602.00	690.00	36.00	41.00	35.60	23.20	.....
Birmingham	135.00*pss*	152.00*pss*	.....	303.00*p*	376.00*p*	465.00*p*	27.00*ff*	38.00*jj*	35.02*mm*	22.30*mm*	26.33*gmm*
Boston	232.00†*mm*	248.00†*mm*	463.25†*mm*	556.00†*mm*	.....	.....	41.50*p*	56.50*p*	40.20§	32.20§	.....
Chicago	137.00*ll*	149.00*ll*	280.00*ll*	.....	.....	.....	30.00	32.00	38.00*ll*	35.20*ll*	.....
Cincinnati	205.00*mmj*	225.00*jmm*	296.00*jddmm*	213.00*jmm*	288.00*jmm*	314.00*jmm*	48.75*jk*	47.00*jk*	28.00*mm*	24.50*jmm*	28.00*jmm*
Cleveland	200.00*tt*	213.00*tt*	.....	453.00*tt*	.....	.....	40.00*tt*	43.00*ggtt*	32.75*ptt*	28.00*ptt*	.....
Dallas	152.00	152.00	300.00	364.50	446.25	552.50	27.50	49.00	41.80	24.58	28.50
Denver	.....	.....	.....	310.00	390.00	442.00	30.00*mm*	49.50*mm*	48.00*pmm*	42.00*pmm*	46.00*pmm*
Detroit	242.00*mm*	258.00*mm*	483.00*mm*	548.00*mm*	723.00*mm*	827.00*mm*	51.50*pmm*	48.00*pmm*	38.00*mm*	30.00*mm*	40.00*mm*
Kansas City	158.00*mm*	158.00*mm*	312.00*mm*	312.00*mm*	400.00*mm*	500.00*mm*	34.00*mm*	34.00*mm*	36.26	34.26	39.76
Los Angeles	*r*	*r*	*r*	*r*	*r*	*r*	35.00*uu*	.....	38.00*nnll*	38.00*nnll*	39.00*nnll*
Minneapolis	192.00*pe*	215.00*pe*	437.00*pe*	315.00*pwe*	.....	.....	45.60*rpe*	54.00*rpe*	49.00*bbe*	38.00*bbe*	52.00*bbde*
Montreal	170.00*auqeo*	178.00*auqeo*	325.00*auqeo*	270.00*qeo*	400.00*qeo*	.....	48.25*bll*	56.30*bll*	39.00	22.00	13.25
New Orleans	186.00	186.00	380.00	380.00	.....	.....	42.00	55.00	44.00	33.00	32.00
New York	180.00*h*	190.00*h*	285.00*ch*	290.00*hn*	.....	.....	44.00*p*	.....	40.00*p*	37.00*p*	.....
Philadelphia	169.00*mm*	180.20*mm*	337.90*mm*	405.00*mm*	.....	.....	30/34*mm*	38/42*mm*	27.60*mm*	25.60*mm*	3.17*mmm*
Pittsburgh	200.00*t*	213.00*t*	400.00*t*	453.00*t*	607.00*t*	693.00*t*	39.00*t*	46.00*t*	38.00*t*	33.00*t*	34.00*t*
St. Louis	180.00*mmpp*	190.00*pp*	385.00*pp*	401.00*ppp*	459.00*pp*	621.50*pp*	44.00*mmpp*	45.50*pp*	1.00*aapp*	.80*aapp*	1.35*aapp*
San Francisco	156.85*mm*	177.10*mm*	235.30*dd*mm*	159.40*qqmm*	.....	.....	43.00*mm*	43.00*mm*	29.24*mm*	29.24*mm*	31.74*mm*
Seattle	235.00*pl*	270.00*pl*	490.00*pl*	265.00*pwl*	.....	.....	48.00*t*	62.00*t*	52.00*bbl*	38.00*bbl*	4.50*mbbl*
Toronto	158.00*rr*	173.00*rr*	336.00*rr*	263.00*frr*	378.00*rr*	.....	35.00*rr*	63.00*rr*	37.00*mm*	34.50*mm*	32.50*mm*

*§ F.o.b. yard. *• F.o.b. plant Stockton. *† F.o.b. yard Roxbury. *a Smooth. *y Chi common. *z Pebble; 80 lb sack. *aa 50 lb sack. *bb LCL. *dd 6 x 12 x 12. *h $4.50 del. *c 8 x 12 x 12 in.-6 cell. *d Pulverized hot. *e less 5% disc., 10th., *ff 80% common. *gg Smooth. *hh less 25¢ disc., cash. *ii F.o.b. plant. *jj rough; *f 8 x 8 x 12. *g Lumps, $26.72. *h F.o.b. trucks, job site N.Y.C. *i 60 lb sacks. smooth; $40. *kk 3½ x 11½ x 11½. *ll less 2% disc. 10th. *mm less 2%, 10 days. *j Truck load or over. *k $1.00 discount per M, 10 days. *l Red face. *m Per bbl. *nn F.o.b., L. A. *oo less 2%, 30 days. *pp add 2% sales tax. *qq 8 x 8½ x 11½. 180 lb. processed. *n 7½ x 7½ x 12. *o Mason's double hydrated pressure. *p Truck *rr 2½% disc., 10 days. *ss 5% disc., 10 days. *tt less 2% disc., 15th. *uu less lots. *q Provincial and Municipal tax extra (6%). *r Not used; earthquake danger. 50¢/M, 10 days. *R revised. # eff. 3/1/59.
*s 8 x 16 x 12. *t less 2% disc., cash. *u Incl. Federal tax. *v Sand lime. *w 5 x 8 x 12.

PAINT, ROOFING—F. O. B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600 lb. (Approx.) bbl. F.O.B. Plant Dry a C	WHITE LEAD Per 100 lb. in 100 lb. cases in oil	READY-MIXED PAINT Per gal., drums Graphite b	Aluminum c	Ferric Oxide d	ROOFING SUPPLIES; Carload lots f.o.b. factory Rolls, slate surfaced, 65–90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$13.75*ggJO*	$24.00*ggJ*	$3.59	$3.86	$3.31	$2.35*kk*	$2.15*kk*	$2.62*kk*	$0.67*kk*	$57.75*kk*
Baltimore	17.50*pp*	24.00	3.00	4.40	3.50	2.78	4.25	4.25	.48	54.75*R*
Birmingham	26.00†*JR*	29.00†*J*	3.90*J*	3.40*J*	.....	3.30†*mm*	2.45*ii*†*mm*	2.45*ii*†*mm*	.82*ffmm*	45.00*eemm*
Boston	24.95†*oomm*	26.90†*mmm*	.....	.....	.....	3.91*q*	2.64*g*	2.83*g*	.50*g*	58.00*g*
Chicago	14.25*rggJ*	24.00†*J*	.....	.....	.....	4.05*nkk*	3.02*okk*	3.32*okk*	46.00*bokk*	57.70†*kk*
Cincinnati	15.25†*JO*	24.00†*J*	.....	.....	.....	2.59*mm*	2.02*omm*	2.42*omm*	.428*ymm*	55.96*Hmm*
Cleveland	25.65†	26.90†	2.48*gg*	3.54*gg*	3.08*gg*	3.29*q*	2.30*o*	2.42*o*	.434*y*	49.00*qq*
Dallas	22.50	23.50*M*	.....	3.25*B*	.....	3.00*u*	3.00*o*	3.00*o*	.470	66.00*hh*
Denver	23.00*n*	24.00	3.98	5.20	3.70	3.19	2.34*o*	2.80*o*	.50*ff*	50.00
Detroit	14.25*r*	24.00*rr*	2.70*mm*	3.95*mm*	2.70*mm*	3.11*mm*	2.23*ommll*	2.42*ommll*	.51*ffmm*	49.00*mm*
Kansas City	25.65*lggoo*	26.90	3.99	3.43	3.01	4.01*mm*	2.92*omm*	2.92*omm*	.80*y*	.....
Los Angeles	12.00*O*	24.00	3.30*n*	4.50*n*	4.20*n*	3.40*nkk*	2.40*nikk*	*l*	.75*nykk*	*l*
Minneapolis	15.83*N*	29.88*kk*	.....	.....	.....	3.28*kk*	2.59*hikk*	2.42*hikk*	.438*ikk*	50.00*rkk*
Montreal	19.45*O*	26.00*rtt*	5.52*Dfft*	6.55*xfft*	5.10*kfft*	5.40	4.65*f*	4.65*f*	1.60	4.40*uu*
New Orleans	23.00*Jpp*	24.00*J*	.....	.....	.....	2.78	1.98	2.85	.680	.....
New York	25.65*oo*	26.90	.....	.....	.....	3.29	2.16*o*	2.45*o*	.438*s*	49.00*
Philadelphia	28.26*ggmm*	25.90*mm*	3.60*mm*	3.40/3.65*mm*	3.50/4.00*mm*	3.00/3.30	2.50*mm*	2.50*mm*	.37/.45*mm*	48/54*mm*
Pittsburgh	15.15*mggJ*	29.75*J*	2.20*jEJ*	2.35*jFJ*	2.25*jGJ*	3.57*aH*	2.75*aH*	2.95*H*	.48*H*	55.00*H*
St. Louis	25.65†*m*	26.90	.....	.....	.....	3.27*iimm*	2.39*hhK*	2.77*hhK*	.428*yK*	62.00*K*
San Francisco	26.70*mm*	26.90*mm*	3.20*mm*	4.30*mm*	3.80*mm*	2.95*mm*	1.97*aaimm*	3.10*mm*	.46*jj*	54.00
Seattle	13.75*HO*	24.50*H*	.....	4.19*ccffJ*	.....	4.02*qccJ*	3.50*hccJ*	.....	.55*cc*	.....
Toronto	14.45	19.75	5.15*J*	6.18*J*	5.95*J*	3.9*cR*	3.05*aaeR*	3.05*oR*	1.01*jR*	58.00*A*

*† Delivered. *• Note: Red lead in oil 50% higher than white lead in oil. *•• Aver. cement. *cc LCL, truck delivery. *ee Asphalt pitch in 100 lb package. *ff 5-gal wt. approx. 425 to 550 lb drums. *a Red lead prices change frequently due to pig lead drums. *gg F.o.b. factory. *hh Incl. freight. *ii Per 324 sf roll. *jj Asbestos price changes. *b U.S. War Dept. Spec. 3–49A. *c ASTM Spec. D266–31. *d 80% roof coating. *kk less 2% disc., 10th. *mm less 2% disc., 10 days. *oo 100 lb bbls. minimum ferric oxide. *e Per 108 sf roll. *f Per 432 sq ft. *g F.o.b. yard Roxbury. *pp 50 or 100 lb bags. *qq 500 lbs or more del. *rr F.o.b. plant, Detroit. *ss 50 lb bbls. *h Per roll, 65 lb. *i Net carload prices, Minneapolis and vicinity. *j 45 gal containers. *tt 25 lb kegs. *uu 250 lb bbls. *A 400 lb barrels. *B ASTM Spec. D962–49. *k Over 80% ferric oxide. *l Not used. *m 100 lb. keg. *n F.o.b. city. *o Per *C 95%. *D Std. black. *f Milt. spec.: E TTP27; F TTY81; G TTP31. *H less 60 lb roll. *p 6-drum, 50 gal each. *q Per 90-lb roll. *r F.o.b. factory, Chicago. 2% disc., cash. *I Per 100 lb. *J less 1% disc., 10 days. *K add 2% sales tax. *s Truckload. *t Incl. Federal tax. *u Per 90-lb square. *v Per ton. *x Ready- *L CL. *M 1 ton or more. *N under 500 lbs, add $1 *O 50 lb. bag. *R revised. mixed. *y 55-gal container. *z Drums. *aa 15 lb. *bb Roofers coating and

PLASTER, VERMICULITE AND METAL BUILDING SHEETS & TUBING

	PLASTER‡ Neat per ton	Gauging per ton	VERMICULITE‡ Home Insulation pellets	Plaster aggregate	Concrete Aggregate Untreated	PERLITE‡ Plaster Aggregate	Concrete Aggregate Untreated	ALUMINUM SHEETC† Flat .102" th 36"x108" & 48"x144" per lbjt	Corr roof .032" th 35"x12' per shu	STAINLESS STEEL† SHEET-TYPE 302*g* 20 ga 48"x96"–120" per cwthh	28 ga 36"x120" per cwtmm	COPPER WATER* TUBING-TYPE L 2000 ft lots per ft ½"b	½"c
			per bag of 4 cu ft										
Atlanta	$31.50*ss*	$37.50*ss*	$1.55*ss*	$1.65*ss*	$1.80*alss*	$1.65*ss*	$1.65*ss*	$0.440*noo*	$8.83*n*	$65.68*nzz*	$74.43*nzz*	$0.1762*ss*	$0.2464*ss*
Baltimore	23.80	34.60	0.95	1.15	1.15	1.15	1.55	0.487	0.489*r*	64.70	73.45	0.1674	0.2371
Birmingham	37.00*ss*	43.00*ss*	1.55*ss*	1.55*ss*	1.60*ss*	1.27*ss*	1.27*ss*	0.458*dM*	9.62*K*	67.34*K*	76.09*K*	0.1762*ss*	0.2464*ss*
Boston	22.00	30.00	1.40	1.40	1.40	1.45*ss*	1.50*ss*	0.462	29.35*p*	65.42*dd**zz	71.92*dd*	0.1762*ss*	0.2464*ss*
Chicago	36.80††	26.80††	1.55	1.60	1.60*l*	1.60	1.60	0.506*x*	10.294*a*	64.15*ee*	72.40*ee*	0.1762	0.2464
Cincinnati	23.85**ss*	23.85**	1.75**ss*	1.75**ss*	1.75**ss*	1.75*ssR*	1.85*ssR*	0.434	9.59	65.30*xx*	74.05*xx*	0.1726*ss*	0.2413*ss*
Cleveland	28.00*N*	45.00*N*	1.13*ss*	1.16*ss*	1.24*ss*	1.45*ss*	1.45*ss*	0.458*ss*	8.48	64.33*oozz*	72.58*oozz*	0.1762*tt*	0.2464*tt*
Dallas	30.65	32.65	1.07	1.23	1.32	1.21	1.32	0.484	0.517*r*	65.00	78.00	0.1702	0.2380
Denver	27.00	27.00	1.50	1.40	1.50	1.40*ss*	1.55*ss*	0.452	10.89	69.07*gg*	76.09*gg*	0.1702	0.2380
Detroit	28.00*ss*	28.00*ss*	1.27*ss*	1.31*ss*	1.40*ss*	1.43*ttt*	1.50*ttt*	0.452*a*	10.19*a*	65.15*azz**	82.57*azz**	0.2795	0.2795
Kansas City	30.00	35.00	1.14*E*	1.18*E*	1.26*IE*	1.18	.....	0.444	23.20*ggvv*	67.50*E*	76.25*E*	0.1762	0.2464
Los Angeles	27.00*tt*	28.00*tt*	1.25*ttt*	1.20*ttt*	1.25*tt*	1.06	1.10	0.486	10.543	66.02	74.27	0.1762	0.2464
Minneapolis	35.00*F*	35.00*F*	1.55*tt*	1.70*F*	1.80*F*	1.40*S*	1.40*S*	0.468	16 23	65.71*G*	73.21*fG*	0.1702*f*	0.2464
Montreal	27.60*h*	35.60*h*	1.25*h*	1.40*h*	1.50*h*	1.15*v*	1.15*v*	43.95*AH*	12.10*H*	64.75*H*	.....	0.1840	0.2187
New Orleans	34.00	48.00	1.25*P*	1.25*P*	1.25*P*	1.25*P*	1.25*P*	0.44	24.9*cR*	71.50	72.45	0.1702	0.2380
New York	25.25	31.25	1.35	1.30	1.50	1.40	1.40	0.462*ad*	9.29*aR*	64.08*aB*	72.33*aB*	17.26*f*	24.13*f*
Philadelphia	23/25*ss*	32.00*ss*	1.35*ss*	1.35*ss*	1.40*ss*	1.05*ss*	1.05*qqss*	0.44*ss*	9.46*ss*	66/68*ss*	75/77*ss*	.16/.18	.22/.24
Pittsburgh	30.00*mn*	33.00*mn*	1.50*mn*	1.50*mn*	1.50*mm*	1.50*mn*	1.50*mn*	0.452	9.46	64.00	76.25*pp*	0.1702	0.1680
St. Louis	30.00*uu*	41.00*uu*	1.50*uu*	1.60*uu*	1.55*uu*	1.60*uu*	1.60*uu*	0.452	10.28	65.39*Kmm*	71.89*yuu*	17.02*fmm*	21.42*fmm*
San Francisco	29.50*ss*	30.50*ss*	1.38*ss*	1.38*ss*	1.50*ss*	1.38*ooss*	1.58*ooss*	0.502	9.76	66.50*K*	74.25*K*	0.1762	0.2464
Seattle	42.40*nn*	45.60*nn*	1.55*nn*	1.25*knn*	1.85*kn*	1.50*k*	.....	0.513*D*	9.90*D*	67.02*D*	75.77*D*	0.1762	0.1848
Toronto	29.00	48.50	1.45	1.45	1.60	45.00*Q*	.....	0.3995	24.75*ap*	73.74	86.52	0.2917	0.3265

‡trucklots, delivered †fob warehouse *fob city *a delivered *b ½" O.D. *c ⅝" O.D. *d 0.100"th *e 34" x 60" sheet *f per 100 ft *g 5 tons & up; cold roll, anneal & pickled 2B finish *h Incl. Federal tax *i add 25¢ for pint of additive *j 1100 & 3003 alloy, mill finish *k bag of 3 cu ft *l treated with air entraining agent *m 2-10M ft *n fob mill fr equalized with nearest stocking competitor *o 250 sacks or more *p 100 sq ft *r per lb *s 30 lb bag *t 36" x 108";–10.81 lb/sh; 48" x 144"; 21.7 lb/sh *u 19.31 lb/sh *v fob plant *w 48" x 144" *x 0.11"th *y 27 gauge *aa 16M lb & up *dd add $1.00 cwt boxing *ee 4 tons & up *gg add $2/cwt boxing; $0.75/cwt on skids *hh Theoretical wt for 48" x 96"; 60.4-lb. per sh *ii 300-bag lots *jj 100-lb bag *mm Theoretical wt; 19.7-lb per sh *nn 2% cash *oo skid packed *pp type 304 *qq Philadelphia and suburbs. *rr less 2% disc. 15 days. *ss less 2% disc. 10 days. *tt less 2% disc. 10th. *uu add 2% sales tax. *vv Type N. *ww Per 100 sf. *xx less ½% disc. 10 days. *yy .021 ga. *zz .061" th. *A Per 100 lb. *B crated. *C 15M lb. *D less ½ % for cash. *E Quantity differential. *F less 5% disc. 10th. *G less ½% disc. 10th. *H Fed. tax exempt. *K less ½%, 10 days. *L 5% disc. 30 days. *M 3003; .052 for 1100. *N less 2%, 15th mo. *O less $2, cash & carry. *P less 2%, 15 days. *Q per ton. *S add .10/bag under 200 bags.

New U. S. 11 moves along on schedule with the help of Du Pont explosives and technical service. This section, between Birmingham and Chattanooga, is being done by the Harbert Construction Corporation of Birmingham.

Highway program goes into high gear... and Du Pont explosives help it get over, under, and through the rough spots

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DU PONT EXPLOSIVES

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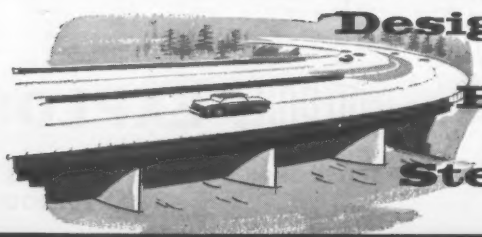
Still safe, still strong after 63 years of daily use. Think of this 63-year record of structural steel's reliability, when you design or build today's highway bridges. Which of today's structural materials can match it?



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BETHLEHEM STEEL

Labor and Materials Prices

Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES

- Cement, Aggregate Ready mixed Concrete, Asphalt: Last, Apr. 9; Next, May 7.
- Iron and Steel Products, pipe: Last, Apr. 16; Next, May 14.
- Wood Products, Glass, Explosives, Chemicals: Last, Apr. 23; Next, May 21.

HOURLY WAGE RATES—Base rate + fringe benefits

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor: Building	Common Labor: Heavy Const	Truck drivers: 1½ T	Truck drivers: under 4 cy	Truck drivers: over 4 cy
Atlanta	$3.75	$3.10	$3.30+7½¢	$3.225	$3.25	$3.50+10¢	$3.35+20¢	$1.75	$1.75	$1.75	$1.85	$2.10
Baltimore	4.10+10¢b	3.30+7½¢cd	3.90+7½¢	3.80/3.95+10¢	3.60+7½¢	3.45+7½¢	3.30+7½¢	2.20+7½¢a	2.20+7½¢a	2.10+7½¢	2.10+7½¢	2.20+7½¢
Birmingham	3.85	2.95	3.35+10¢	2.77	3.17	3.425	3.47+10¢	1.75	1.85	1.83	2.02	2.35
Boston	3.80+30¢f	3.40+10¢g	3.90+20¢	3.77½+10¢	3.65+35¢	3.70+12¢	3.20+10¢	2.65+10¢e	2.55+10¢	2.45	2.45	2.65
Chicago	3.82½+7½,¢ff	3.65+20¢h	4.00+16¢i	3.55+5¢	3.70+25¢	3.90+12¢	3.75+22¢	2.77½+7½¢ff	2.77½+7½¢ff	2.46+15¢	.....	.....
Cincinnati	3.85	3.57k	3.65+10¢	3.375/3.60	3.625	3.82+4¢	3.80+9¢	2.62j	2.525	2.45+2½¢	2.55+2½¢	2.65+2½¢
Cleveland	3.965+10¢j	3.99j	3.89+10¢j	3.99j	3.99	3.95	3.80+19¢	3.25j	3.165j	2.75+10¢	2.75+10¢	2.75+10¢
Dallas	3.875k	3.25l	3.425+7½¢	3.375	3.625+13¢	3.375+7½¢	3.45+8½¢	1.70	1.70	1.70/2.625	1.70/2.625	0.70/2.625
Denver	3.75	3.34	3.175+7½¢	3.15	3.625+12¢	3.75+14¢	3.80+10¢	2.25	2.25	2.30	2.50	2.65
Detroit	3.77+29¢	3.40+41¢	3.75+22½¢	3.47+25¢	3.66+34¢	3.80+35½¢	3.735+14¢	2.65+33¢	2.80+10¢	2.80	2.80	2.80
Kansas City	3.95c	3.50n	3.55b	3.445	3.75	3.60+28¢	3.60+9½¢	2.455c	2.505c	2.43	2.43	2.505
Los Angeles	3.85+10¢	3.375+20¢	3.85+20½¢	3.41+10¢	4.00+30¢	4.15+4¢	3.90+40¢	2.68+10¢	2.68+10¢	2.93+10¢	2.83+20¢	3.12+10¢
Minneapolis	3.875o	3.45o	3.62o	3.45	3.40+23¢	3.38+37¢	3.42+20¢	2.70o	2.70	2.70	2.70g	2.85i
New Orleans	3.525+5¢pq	3.00jq	3.30+7½¢jq	3.125+7½¢	3.12+5¢	3.475+7½¢	3.40+15¢	1.75gp	1.75gp	2.475+7½¢	2.475+7½¢	2.475+7½¢
New York	4.65+43¢s	4.20+34¢r	4.45+46¢s	4.45+36¢	4.35+52¢	4.18+1.32	4.40+48¢	3.10+25¢r	3.10+25¢r	2.35+22½¢	3.15+23½¢	3.15+23½¢
Philadelphia	4.00+17¢	3.635o	4.175+23¢t	2.595/4.23+10¢	4.05+15¢	4.07½+16¢	4.10+16½¢	2.65	2.35		2.57+15½¢	
Pittsburgh	4.20+20¢n	3.675+15¢no	4.00+20¢s	3.64+10¢	3.825+20¢	4.35+32½¢	4.00+20¢	2.45+20¢u	2.30+20¢ff	2.37+20¢	2.51+20¢	2.61+20¢
St. Louis	4.05+32½o	3.675+10¢o	3.75+7½¢o	3.825	3.80+7½¢	3.95½+29.8¢	3.92½+27½¢	2.725+10¢o	2.725+10¢o	2.80+7½¢	2.80+7½¢	2.80+7½¢
San Francisco	4.10+42½¢	3.30+32½¢	3.85+20¢	3.405+10¢	3.74+52½¢	3.91+34½¢	3.70+46¢	2.685+00¢w	2.685+10¢w	2.81+10¢	2.75+10	2.89+10¢
Seattle	390+10¢	3.32+10¢	3.59+10¢	3.29+20¢	3.57+30¢	3.65+26¢	3.81+24¢	2.85+10¢	2.85+10¢	2.87+17½¢	2.87+07½¢	3.07+17½¢
Montreal	2.35+5¢	2.15+5¢	3.25+5¢	2.25+5¢	2.35+5¢	2.35+5¢	2.32+5¢	1.55+4¢	1.55+4¢	1.55+4¢	1.55+4¢	1.55+4¢
Toronto	2.95+12¢	2.65+11¢	2.75+11¢	2.75+11¢	2.80+19¢	3.05+12¢	2.95+12¢	1.70+7¢	1.70+7¢	1.80+7¢	1.80+7¢	1.80+7¢

	Tractor Operators Incl. bulldozers: 34–49 hp	70–100 hp	100 & over	Tractor scraper 15–16 cy	Power cranes & shovels: ½ cy	¾ cy	Motor grader oper	Air comp oper	Air tool oper
Atlanta	$2.75	$2.90	$2.90	$2.75	$3.275	$3.425	$2.75	$2.675	$1.87
Baltimore	3.40/3.55+10¢	3.40/3.55+10¢	3.40/3.55+10¢	3.40/3.55+10¢	3.80/3.95+10¢	3.80/3.95+10¢	3.40/3.55+10¢	2.85/3.00+10¢	2.25+7½¢
Birmingham	2.79	2.79	2.79	2.93	2.93	2.93	2.89	2.52	1.90
Boston	3.40+10¢ff	3.40+10¢ff	3.40+10¢ff	3.40+10¢	3.775+10¢ff	3.775+10¢ff	3.40+10¢	3.325+10¢	2.60+7¢ff
Chicago	3.30+5¢	3.45+5¢	3.30+5¢	3.30+5¢	3.90+5¢ff	3.90+5¢ff	3.50+5¢	3.40+5¢	3.55+5¢
Cincinnati	3.375	3.375	3.375	3.375	3.375	3.60	3.60	3.60	3.60
Cleveland	3.74j	3.74j	3.74j	3.74	3.99j	3.99j	3.74	3.615j	3.615
Dallas	1.70/2.625	1.70/2.625	1.70/2.625	1.70/2.625	3.10m	3.10m	1.70/2.625	1.85	1.85
Denver	2.40	3.00	3.00	3.00	3.15	3.15	3.00	3.00	3.52
Detroit	3.50+10¢	3.50+10¢	3.50+10¢	3.50+10¢	3.50+10¢	3.50+10¢	3.50+10¢	3.195+10¢	2.78+25¢
Kansas City	2.75c	3.20	3.20	3.20	3.445c	3.445c	3.20	3.20	2.55c
Los Angeles	3.71+10¢	3.71+10¢	3.71+10¢	3.81+10¢	3.81+10¢	3.81+10¢	3.81+10¢	2.93+10¢	2.89+10¢
Minneapolis	3.08	3.30	.....	3.30	3.52	3.783	3.08	3.12	2.85o
New Orleans	3.125+7½¢jq	3.125+7½¢jq	3.125+7½¢jq	3.125+7½¢	3.125+7½¢jq	3.125+7½¢jq	3.125+7½¢	2.475+7½¢	1.85jq
New York	3.825+31¢r	3.825+31¢r	3.825+31¢r	3.95+32¢	4.70+38¢	4.70+38¢r	3.95+32¢	3.95+32¢	3.55+18¢r
Philadelphia	——2.595/4.23+10¢——			2.595/4.23+10¢	——2.595/4.23+10¢——		2.595/4.23+10¢	2.595/4.23+10¢	2.25
Pittsburgh	3.44+10¢ff	3.44+10¢ff	3.44+10¢ff	3.44+10¢	3.64+10¢ff	3.64+10¢ff	3.64+10¢	3.15+10¢	2.30+20¢ff
St. Louis	3.825o	3.825o	3.825o	3.825o	3.825o	3.825o	3.825o	3.275o	3.275o
San Francisco	3.70+10¢	3.70+10¢	3.70+10¢	3.70+10¢	3.85+10¢	3.85+10¢	3.75+10¢	3.10+10¢	2.955+10¢
Seattle	3.26+20¢	3.26+10¢	3.26+10¢	3.26+10¢	3.63+20¢	3.63+20¢	3.35+20¢	2.99+20¢	3.05+10¢
Montreal	1.75+4¢	1.98+4¢	1.98+4¢	1.98+4¢	2.25+5¢	2.25+5¢	1.98+4¢	1.85+4¢	1.85+4¢
Toronto	2.15+9¢	2.25+9¢	2.25+9¢	2.25+9¢	2.75+11¢	2.75+11¢	2.25+9¢	2.30+9¢	2.30+9¢

ENR Skilled Average (Bricklayers, Carpenters, Iron Workers): $3.802, ENR Common Average $2.516

Description of fringe benefits last appeared Feb. 26; will next appear in Dec. Quarterly Cost Issue. ♯ **Now negotiating new contract.**

DEFERRED WAGE INCREASES 1959: a Mar. 31: 15¢. b Apr. 1: 15¢. c Apr. 1: 10¢. d Oct. 1: 20¢. e Apr. 1: 13¢. f Apr. 1: 5¢. g May 1: 5¢ h Jun. 1: 10¢. i Jun. 1: 15¢. j May 1: 10¢. k Jul. 1: 7½¢. l Jul. 30: 10¢. m Aug. 1: 7½¢. n Apr. 1: 17½¢. o May 1: 15¢. p Nov. 1: 5¢. q Nov. 1: 10¢. r Jul. 1: 20¢. s Jul. 1: 15¢. t Jul. 1: 12½¢. u Jun. 1: 12½¢. v Dec. 1: 10¢. w May 1: 18¢.

BUILDING BOARD & LATH AND INSULATION—DELIVERED TRUCKLOAD LOTS

	GYPSUM PLASTER BOARD tapered edge per Msq ft ½"	⅝"	GYPSUM BOARD LATH plain or perf per Msq ft ⅜" x 16" x 48"	GYPSUM SHEATHING tongue & groove per Msq ft ½" x 2' x 8'	FIBER BOARD SHEATHING asph impreg & coat per Msq ft ½" sq ed	½" T&G	FIBER BOARD INSULATION sq edge, paint per Msq ft ½"	MINERAL WOOL INSULATION loose, per 40-lb bag a	3" batts per M sf	GLASS FIBER INSULATION loose, per 40-lb bag a	3" batts per M sf	ALUMINUM FOIL 60♯ Kraft 1 side foil per roll of 250 s. f.	Expansible Blanket 2 layers foil per Msq ft
Atlanta	$85.00F	$55.00F	$42.00F	$65.00F	$68.00F	$127.00F	$70.00F	1.50z	$70.00F	$2.00	$80.00F	.....	.....
Baltimore	51.70	45.55	34.25	55.35	65.00	108.50	69.00	1.30	66.50	1.50	45.00	$4.00	$33.50
Birmingham	68.90H	57.00H	47.77H	75.00H	67.50H	140.50H	83.50H	1.40	70.00	1.60	75.00	3.77gG	.....
Boston	60.00m	50.00m	36.00m	60.00m	65.00	120.00	79.00kn	1.45b	75.00	.....	75.00	5.30	53.50q
Chicago	67.00	54.00	45.00	62.00	87.00	123.00	87.00	1.85	80.00	.....	63/65l	5.25g	.....
Cincinnati	48.00wH	42.85wH	32.05wH	51.16wH	70.00wH	125.00wH	72.50wH	1.30wH	65.00wH	1.30wH	76.50wH	3.28iwJ	50.00wJ
Cleveland	62.00CF	56.50CF	41.50CF	65.00CF	75.00CF	125.00CF	80.00CF	1.35/1.50H	72.00H	.....	80.00	17.50ioJ	55.00J
Dallas	55.00	52.50	42.50	60.00	68.75	118.00	68.75	2.00	65.60	1.45	70.67	5.00gA	45.00
Denver	66.00H	58.50H	45.00H	66.00H	79.90H	130.00H	78.90	1.50b	65.00ub	1.75b	65.00a	5.25	48.65
Detroit	66.00K	56.00K	42.45K	66.00K	60.50DK	100.50DK	60.50DK	1.00b	55.00	1.95b	88.00	.....	.....
Kansas City	65.00H	55.00H	40.00H	.....	72.00H	115.00H	75.00H	1.40H	75.00H	2.00H	75.00H	3.60d	53.98
Los Angeles	66.00FR	60.50F	0.33xF	64.50F	75.00F	125.00F	80.00F	76.00BeF	83.00F	1.35a	84.00	4.40g	.....
Minneapolis F	75.00F	65.00F	0.41xL	80.00F	78.00F	140.00F	78.00F	2.00yF	80.00F	1.80F	80.00F	5.50F	.....
Montreal	56.00M	47.30M	36/39M	53.00M	63.25M	.....	63.00M	1.50M	66.00M	1.50M	66.00M	9.00qM	56.00M
New Orleans	60.00H	52.00H	45.00H	60.00H	67.00H	140.00H	80.00H	2.00	65.00*	.....	.....	.....	.....
New York	55.25	47.25	36.25	54.25	75.00	120.00	75.00	1.55b	68.50	.....	68.50	4.38i	54.50c
Philadelphia	55/60N	50/55N	36.40N	52/57N	68/73N	105/110N	55/65N	.....	60/70N	.....	70/75N	5.60/6.34N	40/50N
Pittsburgh	74.00K	65.00K	40.00K	63.00K	62.50K	102.50K	57.50K	1.05xK	55.00K	1.05xK	55.00K	3.80ixK	38.50K
St. Louis	67.00HO	56.50HO	40.00HO	70.00HO	76.00HO	121.50HO	80.00HO	1.35yHO	85.00HO	2.00PHO	74.00HO	4.50iqHO	.....
San Francisco	57.00F	48.00F	0.35zF	58.00F	68.00F	109.00F	67.00F	1.75F	66.50F	1.75F	66.50F	5.10	60.00F
Seattle	68.30K	57.65K	51.05K	65.00K	74.50K	125.00K	73.50K	1.15zK	58.00K	1.90*pK	50.50*IK	4.25K	46.50EK
Toronto	61.00	50.00	38.00L	64.50	75.00	.....	75.00	1.65	65.50	.....	65.50	16.00o	46.00

**** F.o.b. warehouse. •a Semi thick. •b 30♯ bag. •c 12' to 24' width. •d 40♯ kraft paper, 5 Msf, 100/500 rolls. •e 20♯ sq ft bag, 4" thick. •f Full trailer loads. •g 80♯ kraft paper backing 400 rolls or over. •h LCL. •i 40♯. •j 80♯. •l 2". •m 8 to 10 ton quantities. •n Distributor's siding. •o Per Msf roll. •p 32♯ bag. •q 500 sf. •r Per cwt. •s 35♯ bag. •t 26♯ bag. •u Flame proof $75. •w F.o.b. city. •x Sq. yd. •y 30♯ bag. •z Spun rock wool. •A 650 sf. •B ton. •C F.o.b. plant, freight allowed. •D CL. •E 10 Msf. •F less 2% disc, 10th. •G ½ of 1%, 10 days •H 2% disc, 10 days. •J 1% disc, 10 days. •K less 2% for cash. •L 5% disc, 10th mo. •M fed. tax incl. •N 1% disc, 10 days. •O add 2% sales tax. •P 50 lb. bags.**

MEXICO CITY WAGES & PRICES

WAGES, av per hr, 8 hr day	Mar. '59	Feb. '59
Common labor, building (peons)	1.57	1.57
heavy const (peons)	2.00	2.00
Skilled labor, carpenters 1 cl	3.25	3.25
bricklayers 1 cl	2.87	2.87
struct. ironworkers	4.38	4.38

MATERIALS PRICES, F.o.b. City	Mar. '59	Feb. '59
Struct. steel shapes, fob Monterrey		
I-beams, 3 x 3 x 4"..... per metric ton	2100	2100
Reinf. steel, corrugated rods, per ton		
⅜"-½" x 11 meters	2000	2000
¾"-1" x 11 meters	2000	2000

	Mar. '59	Feb. '59
Gravel, truckload at 3½ cu meters		
Blue gravel	96.00	96.00
Rose gravel	90.00	90.00
Cement, std. port. (Tolteca)	240.00	240.00
Lumber, ¾" pine..... per M ft.	1900.00	1900.00
1½" pine..... per M ft.	1900.00	1900.00

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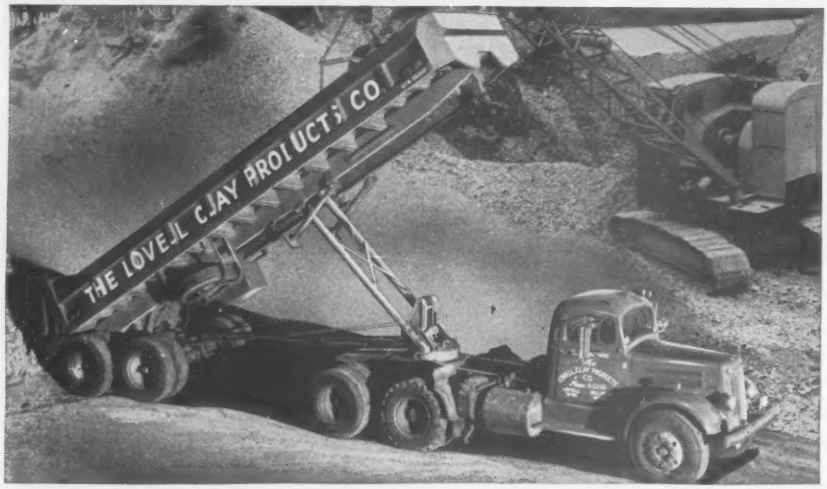

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Hoist-Type Dumps—Wide range of designs—steel units (shown above) or frameless aluminum units (shown below) with up to 3,500 weight savings—single or tandem axle suspensions—single or twin front-mounted or under-mounted telescopic hoists—sand and gravel units or rugged rock bodies.

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Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, MARIE MORAVSIK, ELAINE CHOMYAK, ELIZABETH WERRA, ELEANOR QUERET, Reports, J. H. WEBBER, E. R. HUBER, Statistics.

NEW ENGLAND

BUILDINGS—BA

▲ **Mass., Chicopee**—HOUSING—BA 5/12—City Housing Auth., Chicomansett St., low-housing project. $2,165,000. Plans deposit $50. Sol S. Richmond, 105 Newbury St., Boston, archt. Joseph L. Paley, Inc., 105 Newbury St., Boston, engr. CD 2/14.

MIDDLE ATLANTIC

BUILDINGS—BA

▲ **Pa., Saxton**—SCHOOL—BA 5/21—Pa. Pub. School Bldg. Auth., 101 S. 25th St., Harrisburg, Junior-Senior High School, Tussey Mountain Jt. School Dist., Proj. 801-641. $1,694,940. Plans deposit $50. Hunter, Campbell & Rea, 3601 5th Ave., Altoona, archts. CD 6/16/58.

HEAVY CONSTRUCTION—LB & CA

▲ **Grove, Shepherd, Wilson & Kruge, Inc.,** 400 Madison Ave., New York, N. Y., CA Est. $5,000,000, passenger terminal, International Airport, IDLEWILD, N. Y. Trans-World Airlines, Inc., 10 Richards Rd., Kansas City, Mo. CD 1/22.

▲ **City,** City Hall, Niagara Falls, N. Y., Own Forces, $1,887,700, street imprvs. and resurf., NIAGARA FALLS, N. Y.

▲ **Chas. Simkin & Sons, Inc.,** 95 New Brunswick Ave., Perth Amboy, N. J., CA $3,752,714, general contract sewerage treatment plant, Lamberton Rd., TRENTON, N. J. Dpt. P. Wks., City Hall, Trenton, N. J. Bids Dec. 18, awarded Apr. 16. CD 12/23, under LB.

▲† **George M. Brewster & Son,** 275 W. Fort Lee Rd., Bogota, N. J. LB $3,724,395, est. $4,000,000-$5,000,000 (13 bidders), flood control Kettle Creek Dam, Susquehanna River Basin, ENG-18-020-59-8, PENNSYLVANIA. U. S. Eng., 24th St. and Maryland Ave., Baltimore 18, Md. Bids Apr. 16. CD 3/17.

BUILDINGS—LB & CA

▲ **Jos. L. Muscarelle, Inc.,** Essex and State Hy. 17, Maywood, N. J., CA Est. $2,000,000, PLANT, Carteret site, CARTERET, N. J. Continental Can Co., Int., 100 E. 42 St., New York, N. Y. Bids Mar. 30. CD 3/20.

▲ **Leo Roughgarden,** Morlot Ave., Fairlawn, N. J., Owner Builds, $2,000,000, 50 HOUSES, Mountain Ave., WYCKOFF, N. J. Clarence S. Briggs, 51 Franklin Ave., Ridgewood, N. J., engr.

▲ **Diller Plank, Inc.,** Box 205, Willow St., Lancaster, Pa., LB $2,169,635, general contract MUNICIPAL BLDG., LEBANON, PA. Comrs. Lebanon County, Courthouse, Lebanon, Pa. Bids Apr. 14. CD 4/2.
Margut's Plumbing & Heating Co., 41 N. 7th St., Lebanon, Pa., LB $487,767, heating, plumbing ventilating and air-conditioning for municipal bldg. (Lebanon, Pa.).

▲† **Baltimore Contractors, Inc.,** 711 S. Central Ave., Baltimore, Md., CA $10,339,000, addnl. Wings No. 7 and 8, BANCROFT HALL, Naval Academy, ANNAPOLIS, MD. Dist. P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C. Bids Apr. 8. CD 4/10, under LB.

▲ **Coe Constr. Co.,** 1118 Vermont Ave. N.W., Wash., D. C., CA Est. $2,500,000, MALL STORES for Shopping Center, WHEATON, MD. Wheaton Plaza Regional Shopping Center, 11160 Viers Mill Rd., Wheaton, Md.

SOUTH

BUILDINGS—BA

▲ **S. C., Greenville**—HOSPITAL—BA 5/7—Greenville County, Courthouse, Greenville General Hospital addns., alterations. Plans deposit $50. Extended date. Kiff, Colean, Voss & Souder, at office of York & Sawyer, 101 Park Ave., New York, N. Y., archts. The McPherson Co., 408 S. Main St., engr. CD 4/2.

▲ **Tenn., Chattanooga**—MENTAL HOSPITAL—BA 5/12—State of Tennessee Purch. Agt., Cordell Hill Bldg., Nashville, mental hospital for Dpt. Mental Health. Plans deposit $200. Bianculli & Palm, 438 Volunteer State Life Bldg., Chattanooga, archts. CD 1/30.

▲† **Miss., Biloxi**—HOUSING—BA 5/20—Purchasing & Contracting Office, Keesler Air Force Base, 290-unit Capehart Housing, 64-acre site, Keesler Air Force Base. $4,785,000. Wm. I. Rosamond & Assocs., Propst Bldg., Columbus, archts.-engrs. CD 9/29.

HEAVY CONSTRUCTION—LB & CA

▲ **Ballew & Roberts Constr. Co.,** Sheffield, Ala. LB $1,587,137, 17½ mi. railroad spur from Corinth, Miss. to site of Tennessee River Pulp & Paper Co. at Counce, Tenn., TENNESSEE and MISSISSIPPI. Corinth & Counce R.R. Co., John J. Ross, pres., Savannah, Tenn. J. B. Comerce & Co., Inc., 504 Dauphin St., Mobile, Ala., engr. CD 1/26.

BUILDINGS—LB & CA

▲ **Bechtel Corp.,** 220 Bush St., San Francisco, Calif., CA Approx. $20,000,000, POWER PLANT, PORT EVERGLADES, FLA. Florida Power & Light Co., 25 SE 2 Ave., Miami, Fla. CD 12/11.

▲ **A. C. Samford Constr. Co.,** 630 S. Slappey Dr., Albany, Ga., CA $4,048,056, 488 low rent HOUSING UNITS, Tuxedo Court Project, BIRMINGHAM, ALA. Birmingham Housing Auth., 600 N. 24 St., Birmingham, Ala. Bids Mar. 31, awarded Apr. 17. CD 4/3, under LB.

▲† **Kesk, Inc.,** 136 S. Derbigny St., New Orleans, La., LB $4,573,333, 300 HOUSING UNITS, Chennault Air Force Base, Inv. 59-37, LAKE CHARLES, LA. Base Procurement Office, Chennault Air Force Base, Lake Charles, La. Bids Apr. 15. CD 3/9.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ **Ill., Chicago**—BA 5/5—Dpt. Purchases, City Hall, WW imprvs., erect (A) 3 MGD and one 25 MGD vertical shaft pumps (B) 15 MGD pump Southwest Pumping Plant. $3,000,000. CD 3/5.

BUILDINGS—SLC

▲ **O., Shaker Heights**—MOTOR HOTEL—Shaker Heights Motor Hotels, Inc., 2487 Noble Rd., Cleveland, Zone 21, soon lets contract, Shaker House Motor Hotel expansion. $4,000,000. Joseph A. Gattozzi, 2487 Noble Rd., Cleveland, Zone 21, archt. CD 3/19.

BUILDINGS—LB & CA

▲ **Virginia Engineering Co., Inc.,** 6900 English Ave., Indianapolis, Ind., LB $8,993,000, general contract STATE OFFICE, INDIANAPOLIS, IND. State Office Bldg. Comn., Old Trails Bldg., 309 Washington St., Indianapolis, Ind., Bids Apr. 15, CD 3/19;
Hatfield Electric Co., Inc., 1348 W. 16 St., Indianapolis, Ind., LB $2,698,750, electrical work state office, (Indianapolis, Ind.);
Limbach Co., E. 25 St., Cumberland, Ind., LB $2,150,000, heating, ventilating, air-conditioning state office (Indianapolis, Ind.);

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—LB & CA

▲ **Ashbach Constr. Co.,** 1910 W. County Road C, St. Paul, Minn., CA $2,125,405, Vadnais conduit, Contr. 3, approx. 20,540 lin. ft. 90 in. conduit complete with intake and terminal structure at Lake Vadnais, ST. PAUL, MINN. City, City Hall, St. Paul, Minn. Bids Apr. 7. CD 4/10, under LB.

▲ **TEXAS**—State Hy. Comn., Austin, Bids opened 4/17,
Tex.—John T. Leslie, Bailey, Tex., LB $602,282, flex. base, 2 course surf. treat. 9.568 mi. Hy. St. 114 and 24, Proj. S 623 (1) etc. Wise Co., CD 4/2; LB $96,573, recond., flex. base and surf. 7.899 mi. Hy. F.M. 1806, Proj. C 423-6-5, Montague Co., CD 3/26;
Tex.—R. B. Butler, Inc., Bryan, Tex., and **The Jarbet Co.,** 903 Basse St., San Antonio, Tex., LB $550,817, lime stab. base, hot mix b. conc. 6.826 mi. Hy. St. 90, Proj. F 1084 (7), Washington Co.; LB $96,046, base, surf. 3.389 mi. Hy. 389, Proj. R 315-8-7, Washington Co., CD 3/26;
Tex.—Trinity Constr. Co., Inc., P.O. Box 3024, Houston, Tex., LB $746,076, embankment, cement stab. base, storm sewers, etc., Hy. U. S. 59, Proj. 514 (30), Harris Co.;
Tex.—R. N. Adams & T. L. James & Co., Kaufman, Tex., LB $2,024,468, c. conc. flex. base and surf. shoulders 5.835 mi. Hy. IH 45, Proj. I 45-3 (25), 242, Ellis Co.;
Tex.—E. W. Hahle & Sons, P.O. Drawer 650, Corsicana, Tex. LB $935,664, flex. base, 2 course surf. treat. and riprap, 9.39 mi. Hy. St. 147, Proj. E 390-3 & 2-18 & 21, Angelina and San Augustine Counties;
Tex.—Centex Paving Co., P.O. Box 9062, San Antonio, Tex., LB $734,355, flex. base, 2 course surf. treat. 13.825 mi. Hy. U. S. 380, Proj. F 587 (9), Haskell Co.;
Tex.—Luce Constr. Co., P.O. Box 1799, Vernon, Tex., LB $530,962, flex. base, hot mix b. conc. 13.405 mi. Hy. St. 283, Proj. S 681 (3), Hardenman Co., all foregoing. CD 4/2.

▲† **Morrison-Knudsen Co., Johnson, Drake & Piper, Inc., Paul Hardeman, Inc., & Olson Constr. Co., and F. E. Young,** 411 West 5 St., Los Angeles 13, Calif., CA $40,668,034, Schedule 6, combination of all schedules, WS 107A2, technical facilities, Complex 1A, 1B and 1C intercontinental ballistic titan base at Lowry Air Force Base, ENG-25-066-59-73, DENVER, COLO. U. S. Eng., 1709 Jackson St., Omaha 2, Neb. Bids Apr. 14. CD 3/10, under LB.

BUILDINGS—LB & CA

▲† **T. C. Bateson Constr. Co.,** P.O. Box 35351, Dallas, Tex., CA $5,186,800, 349 unit Capehart HOUSING, FORT SILL, OKLA. U. S. Eng., Box 61, Tulsa, Okla. Bids Mar. 31, awarded Apr. 11. CD 4/31, under LB.

▲ **O. J. Beck & Sons,** 340 Westchester St., Corpus Christi, Tex., LB $1,708,376 (5 bidders) general contr. Spohn HOSPITAL addn. Proj. Tex-178, CORPUS CHRISTI, TEX. Sisters of Charity of Incarnate Word, c/o Spohn Hospital, 1436 3rd St., Corpus Christi, Tex. CD 3/4;
Corpus Christi Plbg. Co., 617 S. Staples St., Corpus Christi, Tex., LB $1,186,450, mechanical work for hospital (Corpus Christi, Tex.);
Mathieu Electric Co., Box 6, Corpus Christi, Tex., LB $483,335, electrical work for hospital (Corpus Christi, Tex.).

FAR WEST

BUILDINGS—SLC

▲ **Calif., Palo**—WAREHOUSE—Hewlett Packard, 1501 Page Mill Rd. soon lets contract, 2 story, 186,000 sq. ft. concrete steel warehouse addns., Stanford Rd. Park. $2,300,000. Clark, Stormquist, Potter & Ehrlich, 3200 Hanover St., archts.

BUILDINGS—LB & CA

▲ **Wm. P. Neil Co.,** 4814 Loma Vista Ave., Los Angeles, Calif., CA $2,000,000, 160,000 sq. ft. OFFICE and WAREHOUSE, 6000 E. Sheila Ave., EAST LOS ANGELES, CALIF. Boyle Midway Co., 4820 E. 50th St., Los Angeles, Calif.

▲ **F. P. Lathrop Constr. Co.,** 800 University Ave., Berkeley, Calif., CA $2,568,200, Mount Eden HIGH SCHOOL, Panama St., HAYWARD, CALIF. Hayward Union High School Dist., 2300 Foothill Blvd., Hayward, Calif. CD 3/26, under LB.

▲ **F. P. Lathrop Constr. Co., Inc.,** 800 University Ave., Berkeley, Calif., CA $3,000,000, general contract, corrugated container MANUFACTURING PLANT, SANTA FE SPRINGS, CALIF. American Forest Products Corp., P. O. Box 911, Norristown, Pa.

LATIN AMERICA

HEAVY CONSTRUCTION—BA

▲† **GUATEMALA**—BA 5/15—In office of Bienes Nacionales, Licitaciones y Asuntow Alemanes, Guatemala City,
7 bridges, Inter-American Highway from Encuentros to Malacatanito, Guatemala Project 30, for Bureau P. Roads, Dpt. Commerce, Inter-American Hy. Div., Wash., D. C., U. S. A. CD 8/5/55.

AMERICANS ABROAD

HEAVY CONSTRUCTION—LB & CA

▲ **Kaiser Industries Corp.,** 1924 Broadway, Oakland, Calif., U. S. A., CA $3,000,000-$4,000,000, Total

(Continued on page 68)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000, other public works $88,000, industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of interest to American contractors.

By Regions & Classes of Construction
(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	Middle West
Middle Atlantic	West of Mississippi
South	Far West

PROPOSED WORK

Water Supply	Public Buildings
Sewers, Waste Disposal	Mass Housing
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

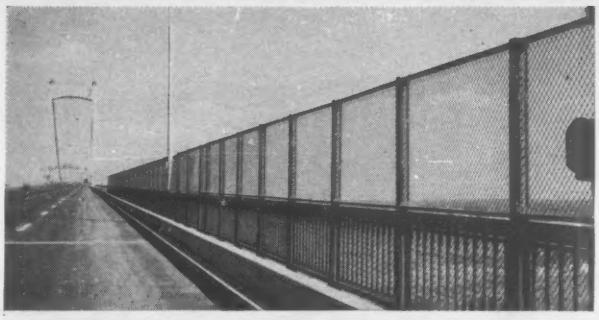
CD dates shown are of Construction Daily issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

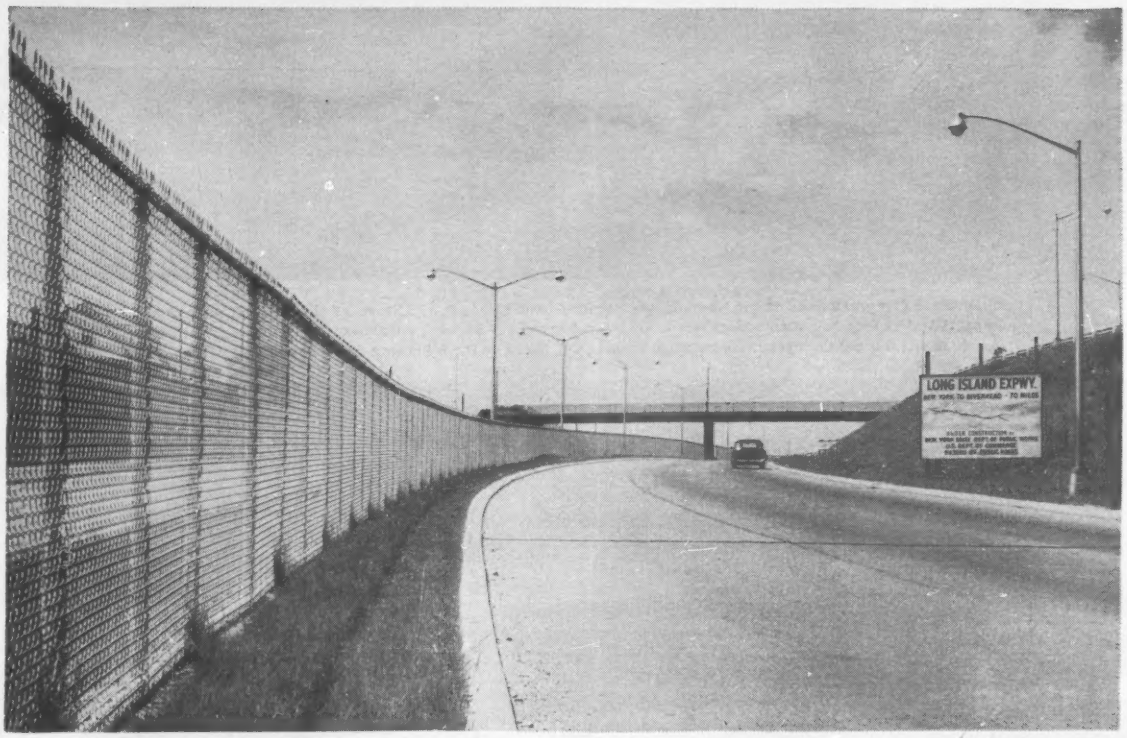
Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.



Aluminum fencing leads to lower ultimate cost



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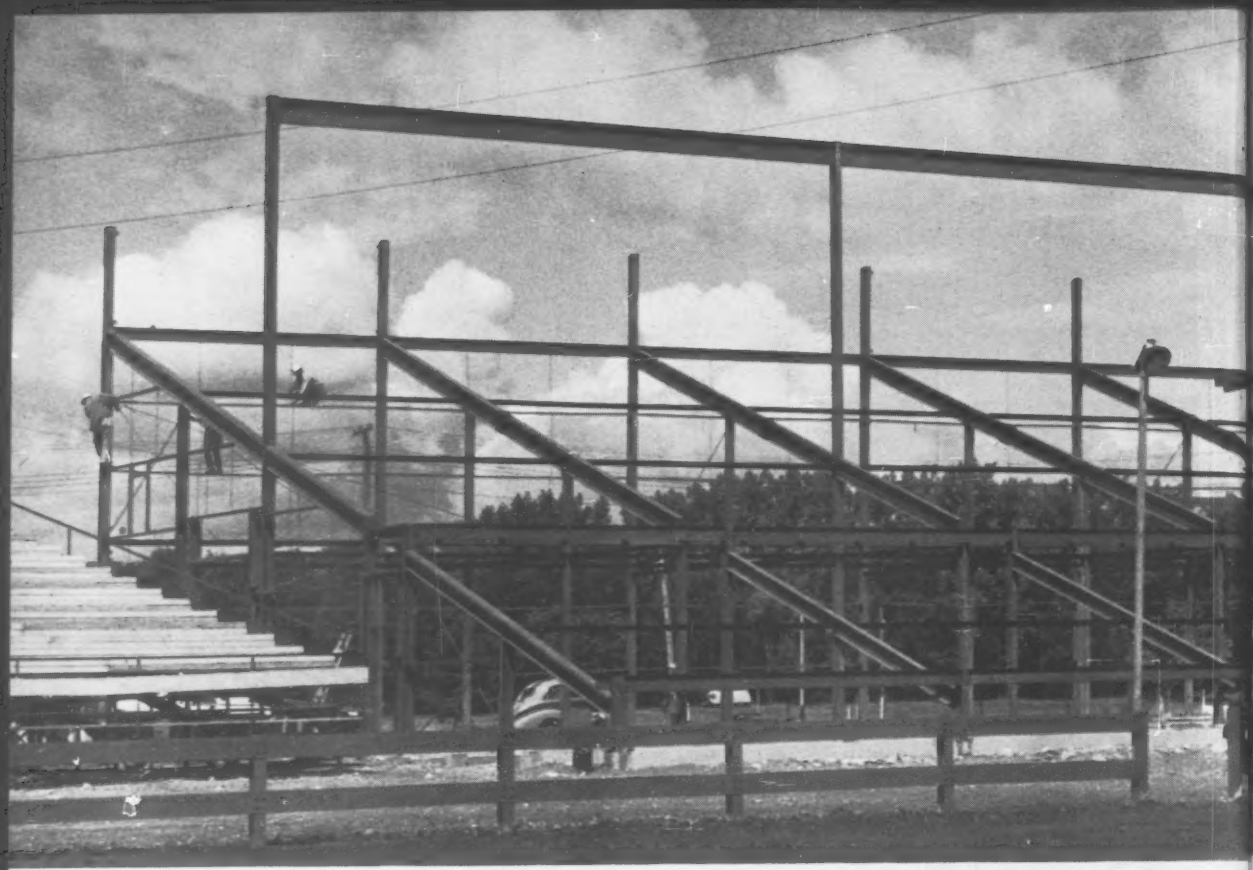

Minot State Fair grandstand, Minot, North Dakota. Fabricated with 92 tons of USS Structural steel and erected in 75 days. Owner: Ward County Fair Assn.; Architect & Engineer: Engineering Division, Arrowhead Engineers & Constructors, Duluth, Minn.; General Contractor: Central Steel Erection Co., Minot, N. D.; Fabricator: Fargo Foundry Co., Fargo, N. D.

USS Structural Steel
delivered quickly in far-away places

NORTHWEST of Fargo is the town of Minot, North Dakota, about 50 miles from the Canadian border. It's not the easiest place to reach with structural steel shipments, but when they wanted steel for a state fair grandstand, they got it . . . pronto . . . from United States Steel.

The order called for 92 tons of structurals, 112 tons of Multigrip Floor Plate and 6 tons of DI-LOK Reinforcing Bars. The steel was fabricated in Fargo, about 225 miles away, delivered to Minot, and erected there in 75 days. This is another case that points up the advantages of dealing with United States Steel. On large or small jobs, you get service when you need it in any section of the country.

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How to handle WET JOBS #47 of a series

Project:
Power Plant, Managua, Nicaragua

Contractor:
The H. K. Ferguson Company, Inc.

Pumping Contractor:
Wellpoint Dewatering Corp.

IN NICARAGUA'S VOLCANIC soil, a Griffin wellpoint system lowers 32 ft of water. Excavated material is used to build a dike (see photo) which protects work area from Lake Managua's waves. No sheeting needed here — excavation open-cut.

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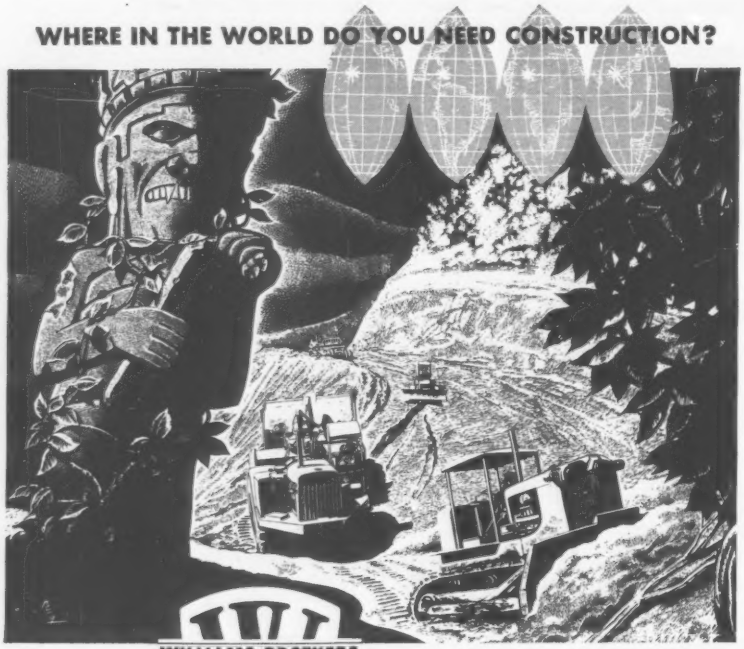

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(Continued from page 64)

est. $168,000,000, preliminary work on Volta River Dam and hydro electric project, GHANA, Government of Ghana, Accra, Ghana.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Va., Fairfax**—Fairfax County Water Auth., 110 Maple St., 35 mi. trunk line will have 30 in. pipe crossing Potomac River to Fairfax Circle and will be graduated down to 12 in. main water lines, Dalecarlia Reservoir to Chantilly, $5,000,000; water lines, pumping plant, etc., Annandale. $1,000,000. Greeley & Hansen, 220 S. State St., Chicago 4, Ill., consult. engrs.

SEWERS, WASTE DISPOSAL

▲ **Ill., Chicago**—City, City Hall, 1 story, brick, Southwest Pumping station, $3,200,000. Alvord Burdick & Howson, 20 N. Wacker Dr., Chicago, consult. engrs.

▲ **N. Y., Endicott**—City, City Hall, sanitary sewerage sys. $4,200,000. Leonard S. Wegman Co., Grand Central Terminal, New York, Zone 17, consult. engr. CD 3/27.

▲ **Tex., Port Arthur**—City, City Hall, voted $1,500,000 bonds Apr. 7, sanitary sewage disposal plant. $2,500,000. CD 3/19.

BRIDGES

▲† **TENNESSEE**—Tennessee Valley Auth., New Sprankles Bldg., Knoxville,
Loudon Co.—2,312 ft. bridge over Fort Loudon Dam, Fort Loudon, Loudon Co. $2,788,000. (Correction—owner). CD 3/9.

STREETS AND ROADS

▲ **ARKANSAS**—State Hy. Dpt., State Capitol, Little Rock,
Crawford and Sebastian Counties—route for Interstate Spur 094 of Interstate Highway 40 north of Van Buren to St. Hy. 22 in Fort Smith, $12,500,000.
Nevada Co.—gravel shoulders, approx. 1.307 mi. in city of Prescott, $7,500.
Ouachita Co.—4 ft. earth shoulders, 3.952 mi. Amy-North Rd., $6,200.
Sebastian Co.—4-lane facility 1.04 mi. Hy. 22.
Sevier Co.—gravel base course and double bit. surf. tr. and gravel shoulders 1.39 mi. Jct. Hy. 71, Howard Co. Line Rd., $24,000.

▲ **MICHIGAN**—State Hy. Dpt., Mason Bldg., Lansing,
Calhoun Co.—5.4 mi. expressway from Graham Lake north to U.S. 12, $1,220,863,
Shiawassee Co.—17.3 mi. M-78, Shiawassee County Expressway. $10,000,000.

▲ **NEW YORK**—Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany,
Bronx Co.—Bruckner Expressway, 0.8 mi. from Lafayette Ave. to Bronx River, $12,700,000.
Bruckner Expressway, 1.4 mi. from Layton Ave. to New England Thruway, $12,176,000.
Bruckner Expressway, Cross-Bronx Expressway interchange, 1 mi., $14,200,000.
Bruckner Expressway, Balcolm to Latton Aves., 0.7 mi., $2,100,000.
Bruckner Expressway, Bronx River to Cross Bronx Expressway, $5,800,000. Howard, Needles, Tammen & Bergendoff, 99 Church St., New York, Zone 7, consult. engrs. Constr. 1959. CD 2/18/55.

▲ **NEW YORK**—Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany,
New York Co.—Trans-Manhattan Expressway: 0.3 mi. section from West End of Alexander Hamilton Bridge to Amsterdam. $6,400,000. Constr. 1959.

▲ **NEW YORK**—Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany,
Queens Co.—Clearview Expressway: consisting of Contr. 1L and 1S—landscaping and signs, $745,000. Constr. 1960.
Contr. 1—Hillside Ave. to 73rd Ave., $6,000,000. Constr. 1962. Blauvelt Eng. Co., 468 4th Ave., New York, Zone 16, consult. engr.

▲ **N. Y., Rochester**—City, City Hall,
Inner-Loop Highway exten. from Scio to Georgia St., $2,700,000.
street imprvs. Union-Goodman-Clifford Arterial, $1,500,000.
street imprvs., Keeler St. Expressway, $1,500,000.
street imprvs., Broad St. Exten. from South Ave. to Union, $800,000.

▲ **PENNSYLVANIA**—Pa. Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg,
Indiana Co.—5.77 mi. 4 lane hy. divided 12 ft. 9 in. ROCP between Indiana and Homer City Boros. Rte. 68, Section R 8 (Proj. 726-1), $3,427,300. Cozza & Critchfield, 610 Wood St., Pittsburgh, consult. engrs. (Correction—owner). CD 3/13, under Pa. Hys. Dpt. as owner.

▲ **PENNSYLVANIA**—Pa. Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg,
Westmoreland Co.—4.01 mi. 4 lane hy. between Beatty and Kingstune, L.R. 119, Section 12B (Proj. 707-1). $2,250,000. H. C. Anderson, c/o owner ch. engr.

EARTHWORK, WATERWAYS

▲† **Kentucky**—U. S. Eng., 306 Federal Office Bldg., Nashville, Tenn., flood control and navigation dam, Nolin River, tributary of the Green River, Brownsville, $14,400,000. ($726,000 appropriated).

(Continued on page 73)

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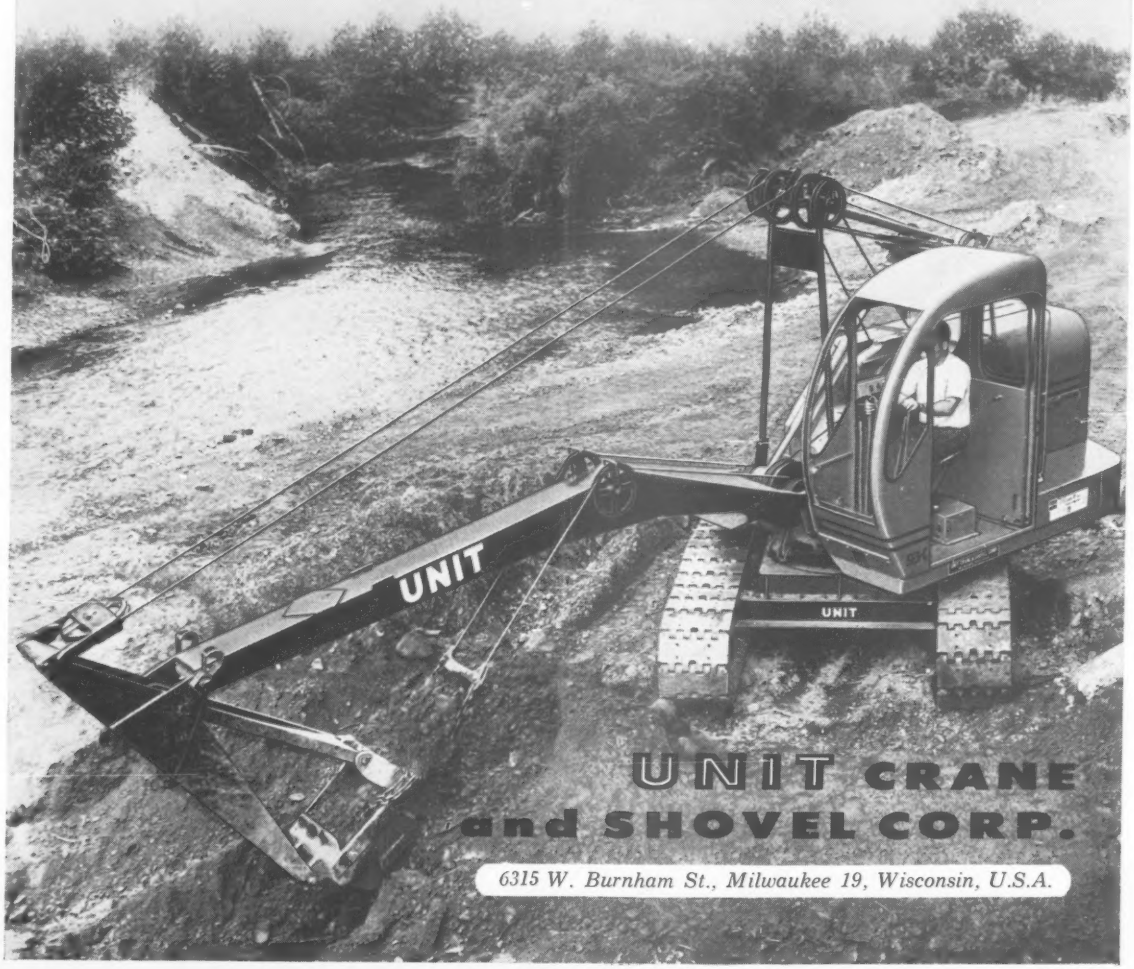

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That's the word from Mr. William W. Spiess, Fleet Maintenance Superintendent for Gull Contracting Company, New York City. Their multi-million dollar contract involves construction of two miles of the new Long Island Expressway.

In just one location on this job, they're moving over 300,000 cubic yards of dirt, concrete and bituminous surfacing. Heavy equipment includes a Lorain 2¼-yard shovel, D8 Caterpillar dozers and a fleet of 14-yard Mack diesel trucks.

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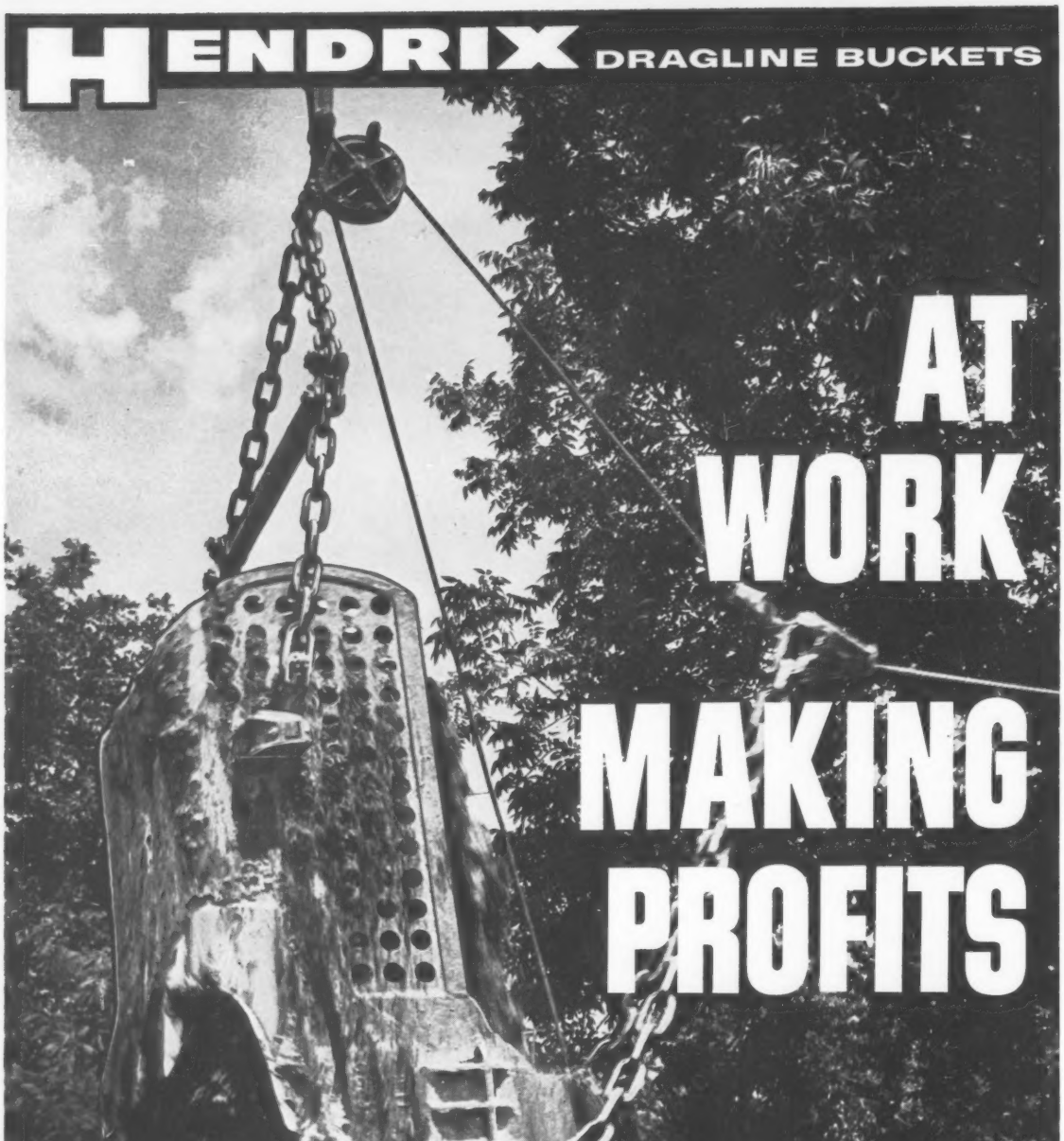
HENDRIX DRAGLINE BUCKETS



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MANSFIELD, LOUISIANA

(Continued from page 68)

▲† **Nebraska and Kansas** — Walnut Creek Watershed Dist. No. 1, Richardson County Soil Conservation Dist., Humboldt, Neb., Brown County Soil Conservation Dist., Hiawatha, Kan., watershed protection, Walnut Creek (Neb.), 80,594 acres, Brown Co., Kan. Richardson Co., Neb., for Soil Conservation Service. $3,005,473.

▲† **Oklahoma**—Konawa Soil Conservation Dist. and Salt Creek Water & Soil Conservancy Dist., Konawa, Okla., and Shawnee Soil Conservation Dist., Shawnee, Okla., watershed protection, Salt Creek, 152,000 acres for Soil Conservation Service. $2,657,589.

▲ **Pennsylvania**—Pa. Dpt. Forests & Waters, Education Bldg., Harrisburg, flood control proj. Broadhead and McMichaels Creeks, Stroudsburg and East Stroudsburg Boros, Monroe Co. $2,700,000. Fridy, Gauker, Truscott & Fridy, 1321 Arch St., Phila., consult. engrs. B. D. Murphy, c/o owner, ch. engr. CD 4/23/58.

AIRPORTS

▲† **Colo., Denver**—TITAN ICBMS BASE—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., second Titan ICBMS base, Lowry Bombing Range, near here, $40,000,000. Daniel, Mann, Johnson & Mendenhall & Assocs., 3325 Wilshire, Los Angeles, Calif., archts.-engrs.

▲ **O., Youngstown**—AIRPORT—City, City Hall, Municipal airport expansion, extending secondary runway from 5,000 to 7,500 ft. $2,000,000, addnl. ramp space for commercial planes $300,000; water supply and sewage plant $100,000. CD 9/20/55.

PUBLIC BUILDINGS

▲ **Calif., Los Angeles**—SCHOOL—Bd. Educ., 1425 S. San Pedro St., plans by Neutra & Alexander, 2379 Glendale Blvd., and Carrington H. Lewis, 344 Tejon Pl., Palos Verdes, Palos Verdes High School, Margate site, Palos Verdes. $5,000,000. CD 11/3.

▲ **Calif., Pasadena**—SCHOOL—Pasadena Bd. Educ., 351 S. Hudson Ave., plans by Zimmerman, Howell, Kline, & Georgi, 2439 Hyperion Ave., Los Angeles, Pasadena High School addn., 2nd increment. $2,000,000. CD 8/12/57.

▲ **Calif., Riverside**—SCHOOLS—Riverside School Dist., Admin. Bldg., 3954 12th St., $13,600,000 bond election June 9, schools. CD 6/26/56.

▲ **Iowa, Burlington**—SCHOOL—Independent School Dist., Bd. Educ., $3,250,000 bond election May 11, elementary school, Junior High School, addn. Oak St. Junior High and other schools.

▲ **Ky., Lexington**—DENTAL SCHOOL—Commonwealth of Ky., Div. Purchases, Frankfort, plans by Meriwether Marye & Assoc., 248 S. Short St., dental school, University of Kentucky Medical Center. $3,500,000.

▲ **Ky., Lakeland**—HOSPITAL—Commonwealth of Ky., Div. Purchases, Frankfort, plans by Meriwether Marye & Assocs., archts.-engrs., 248 E. Short St., Lexington, 2 story State Hospital (mental). $3,000,000. CD 10/22/51.

▲ **Mich., Coldwater**—POWER PLANT—Bd. P. Wks., defeated bonds Apr. 7, expand power plant. $7,000,000. CD 2/19.

▲ **Mont., Great Falls**—SCHOOL—Cascade County School Dist. No. 1, Great Falls, defeated $3,307,500 bonds Apr. 4, 5 elementary schools on sites already owned by district. CD 3/4.

▲ **N. J., Newark**—SCHOOL—City, City Hall, plans by Litwach & Shtein, 911 Clinton St., South 8th St. school addn, $3,000,000, Bids in September or October. CD 3/5/58.

▲ **N. Y., Farmingdale**—SCHOOL—Bd. Educ., Farmingdale, referendum vote June 2, Junior High School and elementary school. $4,255,700. CD 7/15/57.

▲ **N. Y., Penn Yan**—SCHOOL—Bd. Educ. plans by Fudge & Underhill, 105 W. Church St., Elmira, high school. $2,250,000.

▲ **N. Y., Rochester**—PUBLIC SAFETY—City, City Hall, public safety bldg., civic center site. $7,200,000.

▲ **N. Y., Rochester**—UNDERGROUND PARKING GARAGE—City, City Hall, underground parking garage, Midtown Plaza Proj. $4,800,000.

▲ **Pa., Canonsburg**—SCHOOL and HOSPITAL—General State Auth., 18th and Herr Sts., Harrisburg, Phase 2, Western Penna. State School and Hospital, Institution Bldg. $14,000,000; Phase 3, Western Penna. State School and Hospital, Institution Bldg. $5,200,000. A. F. Jones, c/o owner, ch. engr.

▲ **Pa., Madera**—SCHOOL—Moshannon Valley Jt. School Dist., Madera, high school. $2,000,000.

▲ **Pa., Washington**—SCHOOLS—Trinity Jt. School Dist., Washington, high school, $2,500,000; high school addn., $2,500,000.

COMMERCIAL BUILDINGS

▲ **Mo., St. Louis**—TECHNOLOGY BLDG., etc.—St. Louis University, 221 N. Grand Blvd., Zone 3, plans by Leo A. Daly Co., 3207 Olive St., Zone 3, 4 story Institute of Technology, $8,500,000. CD 3/23/56; science bldg. for biology and chemistry, $2,000,000. CD 12/15/55. (Seeking to purchase sites east Grand Bldg. between west Pine and Laclede Aves.).

▲ **N. J., East Orange**—APARTMENT—College Gardens, Inc., 84 Washington Ave., plans by Jos Scrocco, 12 Rock Spring Rd., West Orange, 7 story apartment, Parkway Dr. and Fourth Ave. $2,400,000.

▲ **N. J., Morristown**—STORE—L. Bamberger & Co., Market St., Newark, plans by Chapman Evans & Delehanty, 50 Broadway, New York, N. Y., store addn., Speedwell Ave. $3,600,000. CD 8/29.

▲ **N. J., Woodbridge**—DEPARTMENT STORE—S. Klein, 6 Union Square, New York, N. Y., department store, Rte. 1 between Ford Ave. and Garden State Parkway, $8,000,000.

▲ **N. Y., Buffalo**—DORMITORY—University of Buffalo, 3435 Main St., 10 story women's dormitory. $3,000,000.

▲ **N. Y., New York**—APARTMENT—Ben Kaufman & Assocs., 10 E. 40th St., Zone 17, 30 story co-operative apartment, 1299-1309 2nd Ave., 215-53 E. 68th St., and 212-42 E. 69th St. $10,000,000. (Correction—owners' address.) CD 3/27.

▲ **N. Y., New York**—APARTMENT—Orlian Bldg. Corp., 36 W. 60th St., Zone 19, plans by Sylvan Bien, 342 Madison Ave., Zone 17, 20 story apartment, 531-43 E. 86th St., 1-15 Henderson Pl. and 538-42 E. 87th St. $4,000,000.

▲ **N. Y., New York**—APARTMENT—251 E. 51 St. Corp., 1076 Lexington Ave., Zone 21, plans by Boak & Raad, 175 Fifth Ave., Zone 10, 19 story apartment, 245-53 East 51st St. and 963-71 Second Ave. $2,600,000.

▲ **N. Y., Rochester**—TEMPLE, etc.—Temple B'rith Kodesh, c/o Garson Meyer, chn. Bldg. Committee, 1600 East Ave., Temple and school. $2,000,000.

▲ **O., Akron**—OFFICE, etc.—Owner, c/o Ray C. Bunch, 1500 Superior Ave. Cleveland, Zone 14, plans by Derr & Stueber, 42 Frank St., 7 story office, $7,000,000; 150 room motel, $1,500,000; 64 alley bowling alley, incl. small shops, $600,000. 1,100 car underground garage, 2 decks, $1,000,000.

▲ **O., Columbus**—HOMES—Ernest G. Fritsche & Co., 1260 Zettler Rd., 400 homes, Sullivant Ave. Airport site. $6,000,000.

▲ **O., Mayfield Heights**—HOMES—Midwest Builders, 2199 S. Green Rd., Cleveland, Zone 21, 344 homes on site Mayfield Heights Golf Course. $8,500,000. Plan to start work in fall.

▲ **O., Stow**—HOMES—Valleydale Builders, Inc., c/o Carter T. Willsey, 224 W. Dixon, Dayton, 200 steel, frame prefabricated homes, 66-acre tract, ½ mi. east Kent Rd. between Marcella Ave. and Santom Rd. $3,000,000. Sauter, Ritchier & Doane, 1830 Portage Trail, Cuyahoga Falls, engrs.

▲ **O., Sylvania**—SHOPPING CENTER—Owner, c/o Porter McDonnell, engr., Colton Bldg., Toledo, 20-unit U-shaped Claremont Colony Shopping Center, 21-acre site, southeast corner McCord and Brint Rds. $2,000,000. Constr. 1959.

▲ **Va., Arlington** — APARTMENT — American Mortgage Investment Co. (AMICO) Woodward Bldg., Wash., D. C., plans by Corning & Moore, 1302 18th St. N.W., Wash., D. C., 200 unit apartment, North Adams St. just off Lee Hy. Over $2,000,000.

▲ **Wash., Des Moines**—RETIREMENT HOME—Wesley Gardens Corp., Des Moines, plans by Bain & Overturf, 904 7th Ave., Seattle, Zone 4, rein.-con. retirement home, $3,000,000. Constr. 1959.

▲ **Que., Three Rivers**—HOUSING—Georges de Montigny, 2540 Blvd. du Mont Carmel, 200 houses, housing program, $2,000,000.

INDUSTRIAL BUILDINGS

▲ **Ga., Atlanta**—RESEARCH REACTOR and LABORATORIES—Georgia Institute of Technology, 22 North Ave. N.W., plans by Robert & Co., archts.-engrs., 96 Poplar St., research reactor and laboratories. $4,500,000. General Nuclear Engineering Corp., Dunedin, Fla., consult. engrs. CD 8/28/57.

▲ **N. Y., Rochester**—LABORATORY—Eastman Kodak Co., 343 State St., 8 story, 195,000 sq. ft. laboratory addn. $3,000,000.

▲ **O., Cleveland**—CONVEYOR BELT SYSTEM—Republic Steel Corp., 25 Prospect Ave. N.W., conveyor belt system over Cuyahoga River and Independence Rd. ½ mi. long. $2,000,000. McDowell Engineering Co., 3203 W. 71 St., consult. engr. CD 10/23.

▲ **O., Columbus**—SUPPLY DEPOT—Westinghouse Electric Corp., Gateway Center, 401 Liberty Ave., Pittsburgh 30, Pa., plans by A. M. Kinney Assoc., 2905 Vernon Place, Cincinnati, 600x680 ft., 400,000 sq. ft. tiltup concrete slabs, aluminum siding, translucent supply depot. $4,000,000.

▲ **Tex., Houston**—PARKING GARAGE—Methodist Hospital, Texas Children's Hospital and St. Lukes Hospital (jointly) c/o Milton McGinty, archt., and Vance D. Phenix, assoc. archt., 2425 Ralph St., multi-story parking garage. $3,000,000. Walter P. Moore, 2 Pinedale St. and Raymond L. Jenkins, 2622 Richmond St., consult. engrs. CD 4/13.

▲ **Tex., Paris**—PLANT, etc.—Campbell Soup Co., 100 Market St., Camden, N. J., food processing plant, $3,000,000; storage and shipping, $300,000; water sys., $75,000; site earthwork (grading, filling, leveling, drainage), $72,500; plant area and auto center paving, $100,000; sanitary-storm lines (incl. distr. unit) $125,000, 500-acre site north of here.

▲ **Wis., Milwaukee**—POWER PLANT—Wisconsin Electric Power Co., 231 W. Michigan St., Zone 3, 250,000 kw. power plant, 6th Unit, Oak Creek. $41,834,000. H. E. Mundt, c/o owner, engr. CD 11/22/50.

▲ **Que., Hauterive**—PLANT—Reynolds Aluminum Co. of Canada Ltd., St. Laurent St., no such project to be built, auto parts mfg. plant. $1,000,000. (Correction—status). CD 4/9.

UNCLASSIFIED

▲ **Missouri**—TRANSMISSION LINES, etc.—M & A Electric Power Co-operative, Poplar Bluff, 127 mi. 69,000 volt transmission lines, Pemiscot and Dunklin Counties and vicinity. $2,350,000; power substation near Catron, $500,000. CD 10/19/56.

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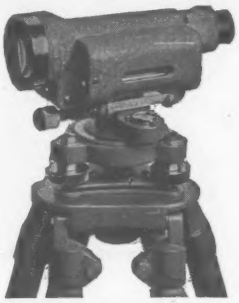

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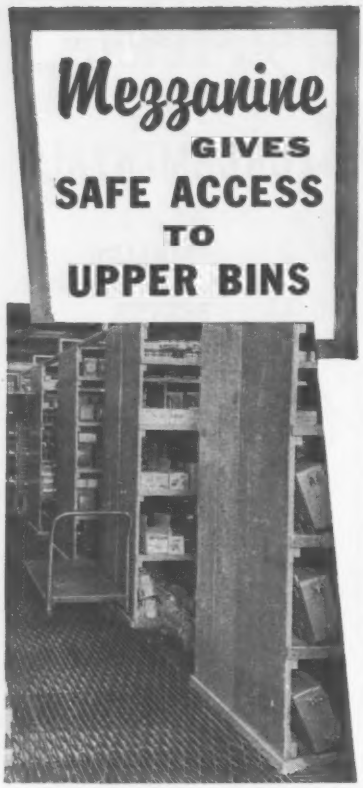

To solve the storage problem in this plant, storage bins along two walls were extended to the ceiling. But to reach the upper level of bins, it was necessary to use a long hazardous ladder.

Safe and easy access was achieved by installing a mezzanine made of open metal grating, midway between the ceiling and the floor. The mezzanine is reached via a stairway also made of grating.

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NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

May 5, 12 Massachusetts — May 8 Vermont

BUILDINGS—BA

▲† **N. H., Portsmouth**—HOUSING—BA 5/27—Procurement Office, Pease Air Force Base, 483 unit Capehart Housing Pease Air Force Base (No. 2). $7,000,000. Plans deposit $100. Anderson-Nichols & Co., 150 Causeway St., Boston, Mass., and Samuel Glaser Assoc., 234 Clarendon St., Boston, Mass., archts.-engrs. CD 4/22.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

May 13 Delaware, New Jersey

STREETS AND ROADS

May 6, 13 New Jersey

BUILDINGS—BA

▲ **N. J., Wrightstown**—HOUSING—BA 5/15—Procurement Office, McGuire Air Force Base, 1450 units Capehart Housing at McGuire Air Force Base (No. 2) Pope & Kruse, 911 Washington St., Wilmington, Del., archts. CD 11/25.

N. J., Elizabeth—APARTMENTS—BA 5/19—Housing Auth. of Elizabeth, eight 3 story apartments, Pine and South Park Sts., Proj. NJ-33, $4,800,000. Pohlman & Henry, 1140 E. Jersey St., archts. CD 5/7/56.

▲ **N. Y., New York**—HOUSES—BA 5/26—New York City Housing Auth., 299 Broadway, New York, Zone 7, Forest Houses South, NY 5-31 and Martin Van Buren Houses, NYC-30. CD 4/20/56.

HEAVY CONSTRUCTION—LB & CA

▲† **Great Lakes Dredge & Dock Co.**, Morgan Bldg., Buffalo, N.Y., CA $4,918,600, (Second Phase), Buffalo Harbor imprvs., CIVENG-30-023-59-38, NEW YORK. U. S. Eng., Engineer Park, Buffalo 7, N.Y. Bids Apr. 9. CD 4/13, under LB.

BUILDINGS—LB & CA

▲ **Depot Constr. Co.**, 42-15 Crescent St., Long Island City, N. Y., LB $6,484,000, general contract RECEPTION BLDG., Bronx State Hospital, NEW YORK, N. Y. Bureau Contracts, Dpt. P. Wks., State Office Bldg., Albany, N. Y. Urbahn, Brayton & Burrows, 654 Madison Ave., New York, N. Y., archts. Bids Apr. 22. CD 4/16.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

May 22 Florida

STREETS AND ROADS

May 5 West Virginia

HEAVY CONSTRUCTION—LB & CA

▲† **Virginia Engineering Co., Inc.**, 80 29th St., Newport News, Va., LB $5,062,000 (10 bidders), Langley BOMARC facilities, ENG-44-110-59-31, LANGLEY AIR FORCE BASE, VA. U. S. Eng., foot of Front St., Norfolk 1, Va. Wigton-Abbott Corp., 45 Academy St., Newark, N.J., archts.-engrs. Bids Apr. 21. CD 3/19.

BUILDINGS—LB & CA

▲ **Mesta Machine Co.**, P.O. Box 1466, Pittsburgh 30, Pa., CA, 300,000 tons per year continuous cleaning and annealing line for STEEL PLANT, WEIRTON, W. VA. Weirton Steel Co., Weirton, W. Va.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

May 12 Ohio

BUILDINGS—BA

▲ **Ill., Des Plaines**—HOSPITAL—BA 5/19—Sisters of Holy Family of Nazareth, River Rd., 4 story hospital. $4,500,000. Burnham & Hammond, 53 W. Jackson Blvd., Chicago, archts. CD 10/1.

BUILDINGS—LB & CA

▲ **Chicago Housing Auth.**, 608 S. Dearborn St., Chicago 5, Ill., rejected bids, Mar. 17, 604 units, Stages 1 and 2 HOUSING Ill. 234, 47 St. to 63 St., along Cottage Grove Ave., CHICAGO, ILL. $7,500,000. CD 3/20, under LB.

▲ **Crane Constr. Co.**, 201 E. Walton St., Chicago, Ill., CA $12,500,000, two 28 story, brick, limestone ext. walls APARTMENTS, Lake Shore Dr. and Addison St., CHICAGO, ILL. Lake Shore Management Co., 3130 N. Lake Shore Dr., Chicago, Ill. Shaw, Metz & Dolio, 208 S. La Salle St., Chicago 4, Ill., archts. CD 5/18/56.

▲ **Felmley Dickerson Co.**, P. O. Box 38, Urbana, Ill., CA $7,859,788, ASSEMBLY HALL, URBANA, ILL. Bd. Trustees, University of Illinois, 256 Administration Bldg., Urbana, Ill. Bids Mar. 4. CD 3/10, under LB.

▲ **Lynwood Development Corp.**, 1021 Delles St., Wheaton, Ill., Owner Builds, $14,000,000, 352 HOMES, Arrowhead subdivision, Butterfield and Orchard Rds., WHEATON, ILL. Awarded Apr. 18. Wight & Co., 1038 Curtiss St., Downers Grove, Ill., engrs. Nerad & Carlsen, 1 McIntosh St., Clarendon Hills, Ill., archts.

▲ **United Engineering & Foundry Co.**, 948 Ft. Duquesne Blvd., Pittsburgh 22, Pa., CA, 80 in. continuous HOT STRIP MILL, Great Lakes Mill, ECORSE, MICH. Great Lakes Steel Co., Div. National Steel Corp., Tecumseh Rd. and W. Jefferson St., Ecorse, Mich.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

May 7, 14 Kansas — May 15 Texas

STREETS AND ROADS

May 7, 14 Kansas — May 8 Minnesota

May 15, 16 Texas

BUILDINGS—LB & CA

▲ **Stearns-Roger Mfg. Co.**, 660 Bannock St., Denver, Colo., CA 22,000 kw. POWER PLANT, near RAPID CITY, S. D. Black Hills Power & Light Co., 621 6th St., Rapid City, S. D. Total est. $5,000,000; **Allis Chalmers Mfg. Co.**, 1126 S. 70th St., Milwaukee, Wis. CA generator (Rapid City, S. D.).

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

May 13 California

STREETS AND ROADS

May 14 California

HEAVY CONSTRUCTION—LB & CA

▲† **Wells Benz, Inc.**, 1357 7 St., San Diego, Calif., LB $5,341,872, est. $8,553,000 (25 bidders), missile base at Fairchild Air Force Base, Inv. 59-66, SPOKANE, WASH. U. S. Eng., 1519 S. Alaskan Way, Seattle 4, Wash. Bids Apr. 21. CD 3/4.

▲† **Mattich Bros. & M. M. Sundt Constr. Co.**, Box 390, Colton, Calif., CA $5,912,018, training base facility, WS 107A-2, incl. missile silos, terminals, control center pads, test mast bases, 10 tunnels, blast docks, loading signal alarm and fire sys. and utilities, Vandenberg Air Force Base, ENG-04-353-59-65, LOMPOC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Apr. 14. CD 4/16, under LB.

BUILDINGS—LB & CA

▲† **Baker & Ford Co.**, Mason Bldg., Bellingham, Wash., CA $5,026,174 (9 bidders), 2 RADAR TRANSMITTER BLDGS. and related work for ballistics missile detector installation, Inv. 59-50, CLEAR, ALASKA. U. S. Eng., P.O. Box 7002, Anchorage, Alaska. Bids Apr. 19. CD 4/14, under LB.

▲† **V. O. Stringfellow & Assocs.**, 5407 20 Ave. N.W., Seattle, Wash., LB $9,268,000, est. $9,940,000, 604 unit Capehart HOUSING at Empire, Ore., and Oak Harbor and Pacific Beach, Wash., Specs. 18434/58, WASHINGTON and OREGON. P. Wks. Office, Thirteenth Naval Dist., Bldg. 250, U. S. Naval Station, Seattle, Wash. Bids Apr. 21, CD 4/7, under Ore., Coos Head, CD 4/9, under Wash., Whidbey Island, and CD 4/7, under Wash., Pacific Beach.

▲ **Tishman Realty & Constr. Co.**, 3460 Wilshire Blvd., Los Angeles, Calif., Owner Builds, $15,000,000. 22 story OFFICE, Wilshire Blvd. and Flower St., LOS ANGELES, CALIF. Victor Gruen & Assocs., 135 S. Doheny St., Beverly Hills, and Daniel, Mann, Johnson & Mendenhall, 3325 Wilshire Blvd., Los Angeles, Calif., archts. CD 9/23.

▲† **Heers Assocs.**, P.O. Box 2187, Riverside, Calif., LB $10,323,620 (3 bidders), 481 unit Capehart HOUSING for Shafter No. 2, and 385 unit, Schoefield Barracks No. 2, HONOLULU, HAWAII. U. S. Eng., P.O. Box 224, Honolulu 4, Hawaii, Bids Apr. 16. CD 4/10.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

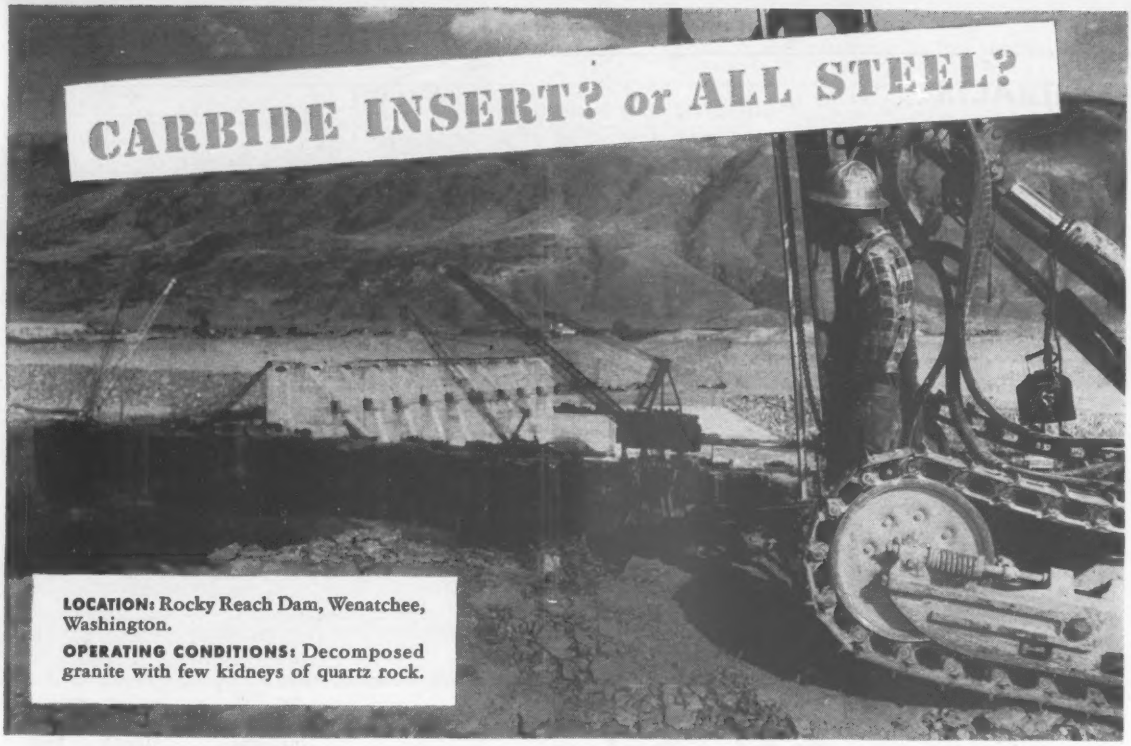
STREETS AND ROADS

May 13, 20, 27 Ontario — May 14 Alberta

BUILDINGS—LB & CA

▲ **Foundation Co. of Canada Ltd.**, 1220 Bay St., Toronto, Ont., CA Est. $20,000,000-$25,000,000. 75,000,000 lb. per year NICKEL REFINERY, Thompson, MANITOBA. International Nickel Co. of Canada Ltd., 55 Yonge St., Toronto, Ont. Foundation of Canada Engineering Corp., Ltd., 8 Spadina Rd., Toronto, Ont., engrs. CD 12/7/56.

(Proposal Advertisement see pp 90 to 93)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LOCATION: Rocky Reach Dam, Wenatchee, Washington.
OPERATING CONDITIONS: Decomposed granite with few kidneys of quartz rock.

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... Reports Goodfellow Brothers, Inc.

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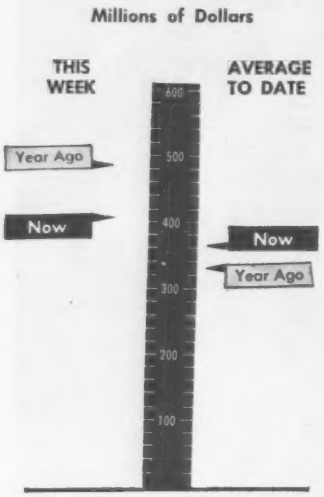
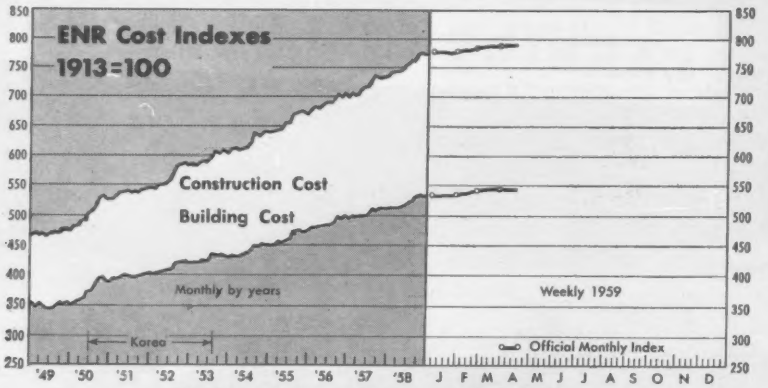
Construction Scoreboard

CONTRACTS ...





CURRENT COST INDEXES

ENR INDEXES (1913=100), 20-cities' average	Week of Apr. 23 1959	% Change from Mar. 26 1959	% Change from Apr. 24 1958
Construction Cost	786.57	+0.4	+5.3
Building Cost	542.75	0	+4.8

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

AMOUNT OF CONTRACTS LET

By Ownership	This Week millions	Cum. 18 wks 1959	Chge '58-'59 %
All Heavy Constr...	$410.9	$6,504.5	+10
PRIVATE	204.4	3,114.5	+11
PUBLIC	206.5	3,390.0	+ 9
State & Municipal..	149.4	2,389.2	− 2
Federal	57.1	1,000.8	+47
By Type of Work			
PUBLIC			
Waterworks	5.3	146.4	+46
Sewerage	15.7	205.7	+10
Bridges*	9.6	201.0	+24
Highways	73.3	940.3	− 1
Earthwork, Waterways	18.4	281.7	+11
Buildings, Excl. Housing	33.5	876.3	+ 8
Housing	20.6	227.2	−38
Unclassified	30.0	511.4	+76
PRIVATE			
Buildings			
Mass Housing	87.7	1,348.1	+ 8
Commercial	58.2	755.3	+17
Industrial	46.4	868.3	+17
Unclassified	12.2	142.6	−10

*Includes private bridges

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

CAPITAL . . .

New Capital For Construction	Week of April 23 millions	Cum. 17 wks 1959	Chge '58-'59 %
Corporate Securities..	$ 76.5	$1,250.6	−36
State and Municipal:			
All Except Housing	337.6	2,360.3	+ 1
Housing	....	30.6	+51
Federal Loans	5.3	39.6	−44
Federal Aid	....	....	....
Total Nonfederal	$419.4	$3,680.9	−16
Federal Appropriations:			
Projects in U. S.	....	....	−100
Outside U. S.	....	....	....
Total New Capital...	$419.4	$3,680.9	−26

BACKLOG OF PROPOSED HEAVY CONSTRUCTION

	March 1959 (millions)	Percent Change from last Month	Year
Total U. S. (ENR reported)	$114,545	−0.1	+ 1.4
By Ownership—			
Private	49,644	+0.2	+ 4.0
State & Municipal	51,119	−0.2	− 0.3
Federal	13,782	−0.9	− 1.6
By Type of Work—			
Waterworks	2,720	−0.1	+12.4
Sewerage	3,639	−0.1	+ 6.9
Bridges	3,374	+0.3	− 2.1
Highways	13,095	−0.6	− 2.3
Earthwork, Waterways	11,824	−0.6	− 3.9
Public Buildings	20,628	−0.2	+ 1.8
Industrial Buildings	17,226	+0.2	+ 2.5
Commercial Buildings	22,201	+0.1	+ 5.5
Unclassified, Private	10,217*	+0.2	+ 3.3
Unclassified, Public	9,622	−0.4	− 4.1

* Includes private bridges, $91 million

FLOW OF NEW PROJECTS INTO THE BACKLOG

	1959 Mar. (millions)	3-months	Percent Change from '58 Mar.	Year Cum.
Total U. S. (ENR reported)	$1,590	$5,022	− 4.2	+ 7.3
By Ownership—				
Private	966	2,590	+64.0	+25.6
State & Municipal	553	2,185	−27.6	+ 0.6
Federal	71	247	−77.0	−44.7
By Type of Work—				
Waterworks	26	148	+139.0	+296.8
Sewerage	37	174	+36.2	+ 0.3
Bridges	41	174	−54.5	− 9.1
Highways	131	611	−51.4	− 1.9
Earthwork, Waterways	11	74	−85.2	−32.1
Public Buildings	320	939	−13.9	− 4.4
Industrial Buildings	374	899	+87.6	+104.8
Commercial: Mass Housing	217	655	+56.1	+12.5
Other Building	282	702	+32.3	−26.2
Unclassified, Private	93	334**	+148.1	+279.2
Unclassified, Public	58	312	−74.9	−38.0

** Includes private bridges $7.5 million

FLOW OF PROJECTS OUT OF BACKLOG INTO CONTRACTS

Total U. S. (ENR report)	$875	$2,408	+18.9	+14.7
By Ownership—				
Private	312	880	+39.0	+22.3
State and Municipal	386	1,039	− 4.3	− 7.1
Federal	177	489	+63.6	+87.3

One of Shyloski-and-Sons' two new C 'Pulls with 18-yd Fullpak scrapers gets heaping load of hard-to-handle sand — grading 45-acre site for housing development near Fairview, Mass. Says operator Louis Squires, "She's a smooth running machine . . . takes on a good load . . . rides nice . . . and doesn't leave you tired out at the end of the day."

"You can't buy a better scraper"

Edward C. Shyloski of Granby, Mass., can well remember the day back in 1941 when he first operated a Super C Tournapull® — one of the most popular earthmovers ever built. Since then, however, Mr. Shyloski has come a long way in the earthmoving business.

Now president of his own construction firm, Mr. Shyloski has found through experience . . . owning and operating L-W equipment for over 17 years . . . that it pays to trade in older machines for modern, faster, more efficient late-model L-W Tournapulls.

"That's why I traded in two 1953 'C's' for two new C Fullpaks®," says the veteran contractor. "They've got that easy-loading bowl and smooth split-second shifting. *All things considered, you can't buy a better scraper . . . 'Pulls* are just basically superior."*

The extra power, speed, and capacity Mr. Shyloski gets from his new C Tournapulls with Fullpak scrapers lets him complete jobs faster . . . handle more work . . . earn bigger profits.

Let us help *you* compare production capacity and costs on your present fleet with modern, high-production Le-Tourneau-Westinghouse equipment.

You'll be able to see for yourself which machines are not "earning their keep" . . . which "old timers" you should trade for new. Lets talk facts.

*Trademark CP-2004-DCJ-1

In its class — TODAY'S 226-hp C 'PULL is your biggest money maker!

- Its 18-yd, low, wide bowl loads faster, boils better . . . packs in full-capacity, low-void payloads
- You have a choice of diesel engines — GM or Cummins
- You have a choice of transmissions — step-gear or power-shift, with speeds up to 33.5 mph
- You get exclusive L-W power-transfer differential that lets you operate in slippery or muddy conditions — you can start work earlier in the spring, work later in the fall
- You get finger-tip electric controls, big air brakes (3,764 sq in.), excellent maneuverability and visibility to help your operator work faster, safer, and more productively for you
- "C's" rugged design, a minimum of lube points, low requirements for fuel, cable, oil, and tires give you the lowest possible operating costs

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

Engineer Gets New 'Bosses'

Lockwood, Kessler & Bartlett, Inc., sells 150,000 shares of stock to public, hopes for Exchange listing

A Long Island professional engineering company last week became a publicly owned corporation. It is believed to be the only company performing just consulting engineering services to have its stock in the hands of the general public.

The company is Lockwood, Kessler & Bartlett, Inc. of Syosset, N. Y. It sold 150,000 shares of its stock on the open market. The shares are now distributed on a national basis.

Offered at $7 a share by Francis I. duPont & Co., a New York City investment and underwriting company, the issue was quickly oversubscribed. Early this week the shares were being quoted at $8 to $9 each in the over-the-counter market. Management hopes to see the stock eventually listed on one of the stock exchanges.

Of the 150,000 shares distributed, 100,230 shares were sold for the company's account. The remaining 49,770 shares were sold by three of the company's officers, who acquired them as part of an exchange and reclassification of common stock previously held only by directors and principal officers. The selling stockholders were Ford Bartlett, president and chairman, Joseph J. Darcy, executive vice president and a director, and Francis V. duPont, a director. Mr. duPont is a cousin of members of the underwriting company, but is not a member of it.

After underwriting and other expenses of issuance, the corporation will receive approximately $632,000. Of this, $350,000 will be used to retire a bank loan. Some of the remainder will be used to diversify the company's business, and a portion may be used to exercise its purchase option on the 25,000-sq-ft plant the company occupies.

Management has not yet decided whether it will pay the purchase price of $335,000 and discharge an existing mortgage, take the building subject to the mortgage or buy the property with a new mortgage. As of Dec. 31, 1958, the mortgage amounted to $126,134. The company has until Oct. 31, 1961, to exercise the option.

Net proceeds of approximately $314,000 obtained from the smaller number of shares sold will be retained by the selling officers.

The company was able to take the path of public ownership because of its status as a corporation. It is among the few professional engineering organizations in New York State practicing as a corporation. New York bars corporate practice of engineering, except for those engineering companies incorporated prior to 1935. Lockwood, Kessler & Bartlett was incorporated in 1934.

The corporate status in this case was advantageous to both the officers of the company and the corporation. For the company, it provided a means to obtain a generous amount of working capital for debt reduction, expansion and real estate. For the selling stockholders, it provided fair compensation for past professional and business capabilities, which will be taxed at the 25% capital gains rate instead of the much higher income tax rates.

On the other hand, as a corporation, the company must reveal much of its business operation to stockholders. And if proxies are solicited, even the remuneration of officers is public knowledge.

Lockwood, Kessler & Bartlett is probably best known for its operations in photogrammetry. But only 16% of its 1958 fee income of $2.4 million came from this source. Highway design accounted for 71%, supervision of highway construction for 8%, and other services for 5%.

In 1954, 47% of $1.1 million of its income came from photogrammetry, against 43% and 8% for highway design and supervision of highway construction, respectively.

Two years later, the company added another source of income. It received 7% of $1.7 million in 1956 income from refinery and pipeline design. This jumped to 13% of 1957's $2.3 million.

No income originated from these sources in 1958. A 1957 court decision almost halted natural gas pipeline construction, bringing a sharp cutback in that kind of work. But the U.S. Supreme Court reversed the decision and the work revived.

Ford Bartlett, a man who is quick to take advantage of a promising business situation, now plans again to drive hard to share in the pipeline design market.

He doesn't let a business opportunity or equipment go to waste. It was his desire to keep expensive equipment working that led the corporation into the aviation business.

The fastest way to do a survey is photograph it from the air, the principle upon which photogrammetry is based. To do this work the company acquired five planes.

However, photogrammetric surveys can only be done on a relatively few days out of each year. Foliage must be absent so that all ground marks are clearly revealed, and there can be no snow, or elevations cannot be accurately measured. This limits flying to early spring and some winter days.

To reduce the cost of the photogrammetric operation, the company in 1956 formed a wholly owned subsidiary, Long Island Airways, Inc., based at MacArthur Airport, Ronkonkoma, N. Y. This subsidiary operated an airplane dealership, a charter flight service and during the summer, a scheduled service between LaGuardia Airport in New York City and Montauk and East Hampton, both on Long Island. By keeping the planes flying when not used for surveying, amortization and depreciation charges are reduced while the parent company also earns money from the equipment.

Oklahoma Counties Face Roadbuilding Funds Loss

Oklahoma's 77 counties will be denied direct control of roadbuilding funds if the governor gets his way.

Gov. J. Howard Edmondson has asked the legislature to place the $29 million now spent by the counties under control of the State Highway Commission.

The bill is designed to eliminate alleged waste, inefficiency and corruption in the county commissioner system, says Governor Edmondson. The state's savings under the plan also may be an alternative to raising taxes to meet state highway needs, the governor indicates.

Under the bill, the State Highway Commission would still spend in each county the funds allocated to that county. One-third of the county's allocation would be used to match federal-aid funds on state and federal highways; the remaining two-thirds would go for construction and maintenance of the county's road system.

(*B&F continued on page 80*)

PIONEERS ROADWAYS

STRIPS BLACKTOP

How you can speed dozing jobs ...cut non-productive costs

To get a work combination that's ready for profitable *action* anywhere ... anytime ... check the 218 hp LeTourneau-Westinghouse Tournatractor®. This rubber-tired tractor can drive job-to-job at a moment's notice. Operator just flips instant-shift lever and he's on his way — over highways or cross-country. Big, low-pressure tires do no damage to pavement, bridges, or RR tracks.

Handles wide variety of jobs

Equipped with bulldozer or Angledozer® blade, versatile Tournatractor does pioneering, ditching, backsloping ... levels and maintains dumps and fills ... strips blacktop ... speeds through dozens of other clean-up and maintenance jobs. Also, Tournatractor's power and maneuverability make it an excellent pusher. And it can be used effectively as a pull-type scraper prime-mover. Use its speed and maneuverability, also, to pull Rooters, Sheep's Foot rollers, and other heavy equipment.

Simple, safe operation

With electric push-button controls grouped handily in front of operator, he can keep his eyes on the ground. And, sitting up front, operator can see where he's going, what he's doing — for sure, safe control at all times. Big, heavy-duty air brakes on all four wheels provide 940 square inches of braking surface on each wheel. That's more braking surface *per wheel* than most comparable units have *on the entire machine*. Operator can effectively use all of Tournatractor's speed and mobility with confidence and safety.

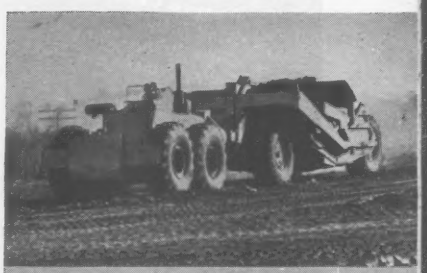
Costs less to maintain

With enclosed anti-friction drive and fewer moving parts, Tournatractor is better protected from wear — will give you higher efficiency through many more hard-working hours of continuous service.

Tournatractor has only 4 rubber-tired wheels compared to about 562 crawler track parts. In many materials, tires outwear tracks by as much as 2-to-1. In highly abrasive materials, tires give as much as 4 times more service than tracks. Also, with extensive oil enclosures, plus anti-friction bearings throughout, maintenance time is much less.

See Tournatractor in action

Why not investigate "work-and-run" Tournatractor's effectiveness for your projects? You'll be amazed at the speed and efficiency in which this rubber-tired tractor can handle scattered dozing and pusher assignments. We'll be glad to arrange a demonstration. Call or write for complete details. CT-1494-DC-1



HANDLES PRODUCTION DIRTMOVING

MAKES EMERGENCY ROAD REPAIRS

DRIVES JOB-TO-JOB

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

WELDED or RIVETED
STEEL PLATE
FABRICATION

★ Boiler Casings
★ Boiler Breechings
★ Flues and Ducts
★ Condenser Shells
★ Condenser Piping
★ Heavy Turbine Housings
★ Fan and Blower Housings
★ Dust Collector Housings
★ Industrial Gas Mains
★ Expansion Joints
★ Hoppers and Bunkers
★ Tanks and Vats
★ Pressure Vessels
★ Wind Tunnels
★ Crane Bridge Girders
★ Trolley Frames and Trucks
★ Rigid Frames
★ Roll-Over Fixtures
★ Tank Turrets
★ Gun Mounts
★ Heavy Truck Bodies
★ Engine Frames and Bases
★ Crawler Frames
★ Press Platens and Beds
★ Press Columns
★ Heavy Machinery Parts and Assemblies
★ Gas Seal Hoods for Blast Furnaces
★ Furnace Roof Rings
★ Design Conversion of Castings to Weldments

MACHINING
★ Complete Machining Service—Facilities for Heavy Work of Unusual Dimensions

STRUCTURAL STEEL
★ For Buildings, Bridges and Special Purpose Structures
Drum Gates
Roller Gates
Taintor Gates
Taintor Valves
Protection Angles

THE R. C. MAHON COMPANY
DETROIT 34, MICHIGAN
Branch Offices in New York and Chicago
MAHON

Failures Down 3% in Quarter

There were 537 contractor failures in this year's first quarter, 3% below the same period last year. Liabilities of defunct construction contractors dropped even more sharply—12% below 1958's first quarter, to $26.8 million.

The number of contractor failures was the smallest for a first quarter since 1956, according to Dun & Bradstreet. Liabilities are also the lowest since 1956.

The favorable showing is concentrated in the general building contractors group, reflecting the recent sharp upturn in private building contracts. Failures in this sector plunged 25% below the first three months of last year to a total of 176. This is the lowest since the boom year of 1956. Liabilities dropped 30%, to a total of $12.4 million.

In contrast to the economic well-being of the general building contractors is the shakier condition of "other contractors" and building subcontractors. "Other contractors" are mostly heavy construction operators. Building subcontractors include painters, plumbers and electricians.

"Other contractors" showed a failure increase of 50%, to 51. Liabilities were up even more—66%, to $3.1 million. The failure rate in this sector reflects the sharp competition for road contracts.

Building subcontractor failures rose 8% above 1958's first quarter to 310. This is the highest first quarter failure total in more than 10 years. Liabilities in this group rose 3% above last year, to $11.2 million.

Both very large and relatively small construction contractor failures show improvement this year. Those failures involving less than $25,000 in liabilities are down 2% from 1958's first quarter. The big ones, with liabilities of $100,000 and over, are down even more—27%. Failures in the middle range are up this year, but only by 3%.

On a regional basis, the most striking decline in construction contractor failures came in the region West of the Mississippi. There failures dropped 30%, but liabilities increased 21%.

Fewer failures also turned up in the New England, the Middle Atlantic states and the South.

New England showed a 5% drop in failures and a 49% plunge in liabilities of the failing companies. The Middle Atlantic region showed a 4% decline in failures, but liabilities rose 12%.

The biggest increase—9%—occurred in the Far West. The Middle West was up 1%. These two regions lagged the most in the volume of first quarter construction contract awards. The Far West had a gain of only 9% in construction contract awards, smallest increase of any region, while the Middle West had a 21% decline. It was the only region to drop below the first quarter of 1958.

First Quarter Failures—Type, Size, Region

Reported by Dun & Bradstreet, Inc.

	Number		%	Liabilities (add ,000)		%
	1959	1958	Chg.	1959	1958	Chg.
U.S. TOTAL	537	555	— 3	$26,774	$30,536	—12
By Type of Contractor						
General building contractors	176	235	—25	12,399	17,722	—30
Building subcontractors	310	288	+ 8	11,239	10,928	+ 3
Other contractors	51	32	+59	3,136	1,886	+66
By Size of Liability						
Under $25,000	274	279	— 2	2,894	2,964	— 2
$25,000-$99,999	212	206	+ 3	9,601	9,852	— 3
$100,000 and over	51	70	—27	14,279	17,720	—19
By Region*						
New England	36	38	— 5	1,285	2,501	—49
Middle Atlantic	128	134	— 4	8,130	7,286	+12
South	86	87	— 1	3,130	5,767	—46
Middle West	111	110	+ 1	4,752	6,944	—32
West of Mississippi	49	70	—30	2,878	2,388	+21
Far West	127	116	+ 9	6,599	5,650	+17

** ENR regions approximated by combining Federal Reserve Districts of original data.*

Harry Pinello reports: For top dirtmoving production...

Fast scrapers, big pushers are "musts" ...but the grader is just as important!

With one quick pass, the 190-hp LeTourneau-Westinghouse grader smooths out rutted haul road. This torque-converter L-W grader alone handled all haul-road and fill maintenance on Pinello's 4-mile U.S. 24 contract... helped put this big job ahead of schedule.

Although 7 Tournapull scrapers dump sand and gravel almost continuously on this ¼-mile fill, 27.4-mph POWER-*Flow* 660 easily keeps area smooth and level. This unit is equipped with power-shift moldboard — which shifts 26½" left or right of center position — saves costly backing and maneuvering time. Comments operator Harry Pritts, "I like this torque-converter 660 grader... it has plenty of weight and power to get heavy work done easily and fast. And I can really use the power-shift moldboard to good advantage here... sure helps to speed up this job."

Veteran earthmover Harry Pinello of Colorado Springs, Colo., knows that *fast* scrapers are a necessity because they are the machines that actually *move* the pay-yardage (he owns 7 LeTourneau-Westinghouse Tournapulls®). He knows, too, that how *much* pay-dirt a scraper moves in each load depends not only on easy-loading characteristics but also on the speed and power of the pusher (his chief tractor: an L-W 420-hp Twin-C*). He's also aware that the *time* needed for a scraper to complete a load-haul-spread-return cycle at maximum profit rests as much on the haul road's condition, as on the speed-ability of the scrapers.

That's why Harry Pinello uses a LeTourneau-Westinghouse Adams* Model 660 POWER-*Flow*® grader to keep haul roads and fill areas in tip-top shape. On the job illustrated — four laning 4 miles of U.S. highway 24 near Colorado Springs — his 190-hp torque-converter grader worked regularly over the important haul roads... leveling ridges, filling in ruts and cutting drainage ditches. In the fill area, with 7 L-W 'Pulls* spreading sand and gravel almost continuously, POWER-*Flow* 660 easily kept fill leveled... to make compaction easier and to permit scrapers to spread on-the-run.

Because the "660" helped to keep scrapers moving fast and smooth, the job was jumped ahead of schedule...with 20% of all dirtwork completed...in just 16 eight-hour working days. Pleased with job's progress, owner Harry Pinello says, "Adams graders are the best we have ever used on our jobs. *They handle larger loads and have far less downtime.*"

Let us give you all the facts on the 190-hp POWER-*Flow 660* grader. Six other L-W Adams model graders are available, 60 to 160 hp. Ask for a demonstration.

*Trademark G-2041-DC

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

Featherbedding: Fact and Fancy

- **Half of the contractors surveyed by ENR say featherbedding is not a serious problem. Others find it a costly and aggravating practice.**
- **Because of these split opinions, contractors haven't made much headway in getting the "Ten Commandments" adopted at the local level.**

Contrary to popular belief, featherbedding is not a universal problem in the construction industry. But like so many other labor issues, it is one on which contractors have about as many views as there are people to express them.

An ENR survey of efforts to reduce wasteful work practices shows contractors are about evenly split on the prevalence of featherbedding, often called "make work."

In nearly half the cities surveyed, featherbedding has never been and is not considered serious enough to be much of an issue. In other areas, it is viewed as a costly and vexing problem. No union, however, comes in for general criticism—excepting the operating engineers—and some unions evoke no criticism at all.

As a result of these differing views, labor's relatively new work practices code, known as the "Ten Commandments" (page 86), is not being pushed very vigorously at the local level. And there is little indication that it is being used in this year's collective bargaining except in pieces, and then only for bartering purposes.

The code was adopted as a "statement of policy" by the presidents of the AFL-CIO international building trades unions in February, 1958. It has been called the most significant construction industry labor development in the last 20 years. The National Constructors Association and building trades President Richard Gray played key roles in getting the code started at the national level.

The code seeks, through voluntary action, to reduce and stabilize construction costs by eliminating featherbedding, slowdowns, jurisdictional strikes and other wasteful and nonproductive practices that disturb the industry and short-change the public. These practices, except for jurisdictional strikes, are largely untouched by the law.

There has been a tendency to think of the code as an anti-featherbedding measure rather than as a comprehensive device for cutting unnecessary costs and increasing productivity.

An eastern contractor reports: "We don't have enough of a featherbedding problem in this area to give the code much attention." In a western city, where little has been done with the code, an employer says, "Featherbedding may be a problem in the East but not here."

A contractor located geographically between the two notes that "featherbedding is not so much a problem here as in some other areas, but we will continue to push the code as it is based on sound principles."

These contractors say they have no trouble, for example, with slowdowns or with union demands for stand-by crews, for restrictions on labor-saving devices, or for "twice work," such as removal and replacement of glass in prefab windows.

Some suggest the absence of featherbedding is largely the result of contractor supervision and of refusal to permit featherbedding practices to be written into labor contracts. Others say the recession has knocked the wind out of union featherbedding sails and there is not much left for the codes to do.

However, a few contractors suggest that the apparent absence of featherbedding may simply be "due to the fact that we've gotten used to it." Another indicates that it may be a "de minimis" proposition and says that featherbedding would not account for more than $1,000 to $2,000 of the cost of a $1.5-million building project.

On the other side of the fence are contractors who call featherbedding a "terrible" problem. One says the building trades unions are so "encrusted" with featherbedding that it "cannot be eliminated overnight."

Examples cited include the manning of pushbuttons on automatic machinery (the chief criticism of operating engineers), unnecessarily large work crews, sharing the installation of prefab kitchen sinks between carpenters and plumbers, having an electrician on welding machines, giving unions that

(*Continued on page 86*)

Featherbedding and the Law

• **Webster's definition**—"The practice of limiting work or output in order to provide more jobs and prevent unemployment."

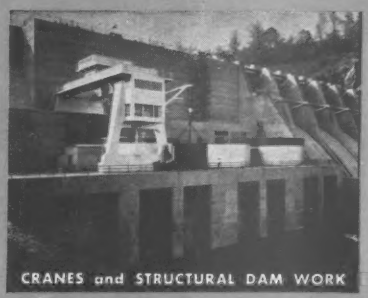
• **Taft-Hartley Act**—"It shall be an unfair labor practice for a labor organization or its agents . . . to cause or attempt to cause an employer to pay or deliver or agree to pay or deliver any money or other thing of value, in the nature of an exaction, for services which are not performed or not to be performed." [Sec. 8(b)(6)]

• **U. S. Supreme Court**—"However desirable the elimination of all industrial featherbedding practices may have appeared to Congress . . ., Congress decided to limit the practice but little by law. . . . Sec. 8(b)(6) leaves to collective bargaining the determination of what, if any, work, including bona fide 'made work,' shall be included as compensable services and what rate of compensation shall be paid for it."

Announcing a New Nationwide Steel Erecting Service

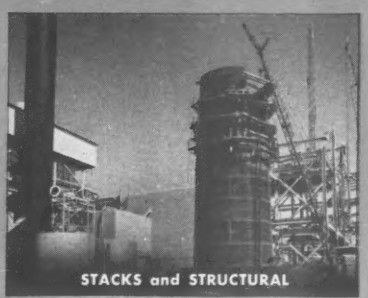
YUBA CONSOLIDATED ERECTORS, INC.

BRIDGES


CRANES and STRUCTURAL DAM WORK

MULTI-STORY BUILDINGS

TANK FARMS


STACKS and STRUCTURAL

REINFORCING BAR WORK

This new Subsidiary provides an important extension to Yuba's nationwide steel fabrication facilities, and to the construction industry on all types of heavy building projects.

Those responsible for major construction projects, as well as those who buy equipment from other Yuba Divisions, are offered a new service through Yuba Consolidated Erectors, Inc.... broader in scope, and performed by men with widely recognized skill, experience and competence.

Key men in this new Yuba Subsidiary are J. Phillip Murphy, President, and Francis J. Murphy, Vice President and General Manager. These men, together with others long associated with them, were responsible for the fabrication and erection of the steel for the Richmond-San Rafael bridge across San Francisco Bay; for Glen Canyon, world's highest arch bridge, spanning the Colorado River, and for other notable bridges. These are the men who have erected the steel for scores of multi-story buildings, and placed the reinforcing steel on such huge projects as the Shasta, Hanson, Mud Mountain, Nimbus dams, and currently the Glen Canyon Dam; and for the reinforcing steel in the Kaiser, Crown Zellerbach and John Hancock office buildings in the San Francisco Bay area. The list goes on and on, exemplifying their know-how and ingenuity... their acknowledged position of service to the construction industry.

Yuba Consolidated Erectors, Inc., is completely equipped for field work... on land and water... large or small... anywhere. For additional information, please phone, wire or write 351 California Street, San Francisco, California.

YUBA

YUBA CONSOLIDATED ERECTORS, INC.
A Subsidiary of
YUBA CONSOLIDATED INDUSTRIES, INC.
351 California St., San Francisco, Calif.

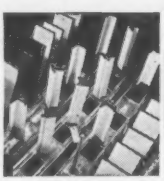
7 TESTS PROVE SUPERCOAT PERFORMANCE

SOAK TEST simulates field condition of windows standing in water before installation.

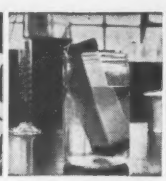
SALT SPRAY TEST parallels coastal area atmospheric conditions of saline exposure.

WEATHEROMETER TEST duplicates the field condition of exposure to strong sunlight.

ABRASION TEST simulates abrasive materials rubbing against frames and windblown abrasives.



HUMIDITY TEST parallels field conditions of humidity inside and outside of windows.



ALKALI TEST duplicates field conditions of rain dripping off mortar, plaster, etc.

MAR PROOFNESS TEST simulates field condition of sliding frames across one another in handling.

SUPERCOAT

TRUSCON'S sensational finish for steel windows

Forget field painting problems. Truscon's SUPERCOAT is a factory-applied finish for steel windows that eliminates all field painting. Practically eliminates maintenance painting, too.

SUPERCOAT is a two-coat baked enamel that was originally developed for home water-using appliances in which corrosion must be avoided. This superbly smooth, hard and glossy finish has been improved by Republic's research laboratories to further withstand exterior exposure.

SUPERCOAT has been thoroughly laboratory tested for weather, atmosphere, time, and abuse. It has successfully met every challenge.

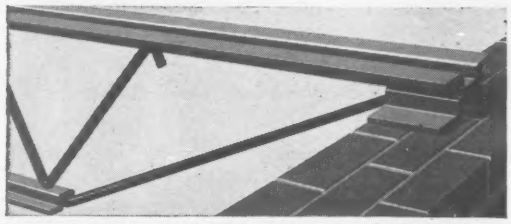
As a result of the development of SUPERCOAT, there is no need to sacrifice strength and solidity in window sections simply to avoid field painting or difficult maintenance painting.

Specify SUPERCOAT on all types of Truscon Steel Windows for institutional, commercial, industrial, and office building applications. Standard color is light gray. Also available in attractive colors.

See, examine this sensational finish. Call your Truscon representative, or write direct for attractive brochure and free samples of Truscon window sections finished with SUPERCOAT. Send coupon today.

Truscon's SUPERCOAT finish can be specified in the design and construction of steel windows for beautiful apartment buildings such as the Prairie Shores Apartment #1, Chicago, Illinois, illustrated at the left.

Architect: Loebel, Schlossman & Bennett
Contractor: Sumner Sollitt Construction Company
Product: Truscon Series 138 Double-Hung Steel Windows with SUPERCOAT



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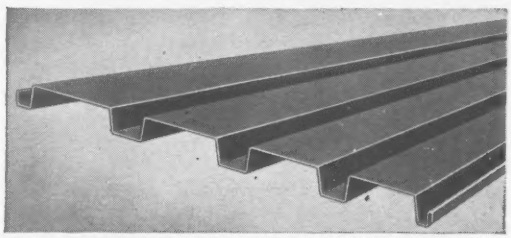

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☐ Truscon "O-T" Steel Joist ☐ FERROBORD Roofdeck
☐ Truscon Metal Lath and Accessories

Name _____ Title _____
Firm _____
Address _____
City _____ Zone ____ State _____

Labor's 'Ten Commandments'

1. The **selection of craft foremen** or craft general foremen, over workmen of their respective crafts, shall be entirely the responsibility of the employer.

2. The **welding torch** is a tool of the trade having jurisdiction over the work being welded. Craftsmen using the welding torch shall perform any of the work of their trade, and shall work under the supervision of the craft foreman.

3. Workmen shall be at their regular place of work at the **starting time** and shall remain at their place of work until the regular **quitting time.**

4. There shall be **no limit on production** of workmen or restriction on the full use of proper tools or equipment and there shall not be any task or piece work.

5. Payment of **excessive daily travel allowances** or subsistence shall be discouraged.

6. **Jurisdictional disputes** shall be settled in accordance with the procedure established by the Building Trades Department of the AFL-CIO or in special cases as agreed and established by two or more International Unions, without interruption of work or delay to the job.

7. So-called **area practices,** not a part of collective bargaining agreements, should not be recognized nor should they be enforced.

8. **Slowdowns,** forcing of overtime, **spread work tactics,** standby crews and **featherbedding** practices have been and are condemned.

9. **Stewards** shall be qualified workmen performing work of their craft. There shall be no non-working stewards.

10. There shall be **no strikes, work stoppages, or lockouts** during the processing of any grievances or disputes in accordance with the manner prescribed in the local or national agreement.

use certain materials the right to unload them, application of more coats of exterior stucco than necessary and use of an iron worker signalman on cranes when no iron is being hoisted.

A few throw "early quitting time," "deadheads," "excessive" travel allowances and the guaranteed 40-hour week into the featherbedding pot.

Even where featherbedding is considered an area or trade problem, the "Ten Commandments" have had little success as a single package.

There are only a few instances reported where a local union has adopted the code in toto. Nine local unions in Illinois' Madison and St. Claire counties adopted the code last year, and a modified version was negotiated with the unions in Cleveland. In St. Louis, labor and management agreed, instead, on the principle of giving "a full and reasonable day's work in keeping with" existing labor agreements.

A number of the 10 points in the code have been pulled out and put in local and national labor contracts. And the code has been prominently posted at construction sites in many areas.

But, for the most part, the code merely serves as something to barter with in the give-and-take of collective bargaining or as a talking point in day-to-day operations.

Contractors, however, report a noticeable improvement in labor conditions in areas where the code has been accepted in whole or in part.

The reasons for only partial use of the code are numerous and lie at the local level rather than the international one, where the code has the vigorous support of union and contractor groups.

(Earlier this year, the AFL-CIO Building and Construction Trades Department, the presidents of the international building trades unions, NCA and the Associated General Contractors of America reaffirmed their support of the 10-point program.)

One of the bigger problems mentioned is that local conditions vary from trade to trade, area to area and job to job. Even the code clause on starting time, contractors say, cannot be universally applied because of the difference, for example, between ground and skyscraper construction.

Another problem — accounting for some union disinterest in the code—is that local labor contracts or practices are said to make adoption of the code "unnecessary." One unionist says, "There's nothing in this 10-point code that deviates from our traditional union policy. We've always followed these ideals and we're continuing to do so." Others say they have always urged contractors not to countenance featherbedding practices.

This feeling is expressed in Chicago and Los Angeles, where master labor agreements incorporate many of the principles expressed in the code, and by laborers in Granite City and East St. Louis, where existing labor agreements call for no restrictions on production or on labor-saving devices and no predetermination of work crew sizes.

Some contractors and union people in the field find various sections of the code "objectionable because of their wording." In trying to adapt them to local problems, they run into particular difficulty on featherbedding. Many are not sure which sections apply to featherbedding—always a touchy subject with labor, which is reluctant to admit its existence. Others "can't agree on a definition of featherbedding."

The inability to talk about featherbedding with any precision has seriously handicapped efforts to cope with the problem. The responsibility for the confusion rests largely with Congress, which has indirectly declared that what may be economically wasteful or morally wrong in the eyes of some is nevertheless legally proper.

The word "featherbedding" was coined after brakemen on a railroad complained about the corn husks they had to use for beds in the cabooses. The boss replied, "What do you want, featherbeds?" Ever since then, the term has been applied to all kinds of union demands that lead to unnecessary or unproductive labor costs.

Typical demands relate to the preservation or creation of job opportunities, but the term has been used to include show-up time, travel pay, overtime and premium pay, jurisdictional claims, restrictions on labor-saving devices, fixed or stand-by crews and slowdowns.

Congress has outlawed only those practices that amount to "robbery or extortion" (the Hobbs Anti-Racketeering Act) and "exaction" of payment for services not performed (the Taft-Hartley Act), except for giving specific relief to the broadcasting industry in the Lea or anti-Petrillo Act.

Result is to make lawful any unnecessary or wasteful work practice voluntarily agreed to or condoned by an employer or negotiated into a labor contract. And the U. S. Supreme Court, in upholding the right of printers to demand pay for "bogus" work,

(*Continued on page 88*)

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How much does rusty equipment cost *you?* With Rust-Oleum, you STOP RUST—and you match original equipment colors, too, for long-lasting protection! Words are fine . . . but we want you to actually take the brush and see for yourself how *easy* it is to use Rust-Oleum . . . see how it dries to an *attractive, high-gloss finish* that resists rain, snow, sun, fumes, heat, road grime, and blowing dust and sand. And the same formula can be applied by hot or cold spray. Just check off the color you desire on the coupon and attach it to your business letterhead for a FREE TEST SAMPLE. No cost or obligation.

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Please send me a FREE TEST SAMPLE in the color checked:

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- ☐ H-50 Primer
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- ☐ 2766 White

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- ☐ H-6 Flambeau Red
- ☐ H-28 Desert Sunset

CATERPILLAR
- ☐ H-4 Yellow

JOHN DEERE
- ☐ H-3 Green
- ☐ H-10 Yellow
- ☐ H-11 Red

MASSEY-HARRIS
- ☐ H-18 Yellow
- ☐ H-19 Red
- ☐ H-23 Straw Yellow

OLIVER
- ☐ H-12 Green
- ☐ H-13 Red
- ☐ H-14 Orange
- ☐ H-22 Yellow

EUCLID
- ☐ H-9 Green
- ☐ H-27 Light Green

FORD
- ☐ H-20 Gray
- ☐ H-21 Red

MINNEAPOLIS-MOLINE
- ☐ H-16 New Prairie Gold
- ☐ H-17 Red

FERGUSON
- ☐ H-7 Gray

INTERNATIONAL
- ☐ H-2 Red
- ☐ H-8 Blue
- ☐ H-15 Green

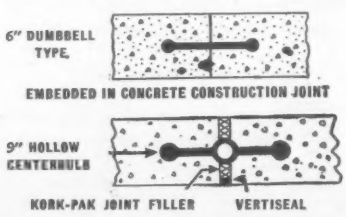
How to Choose Waterstop for optimum performance in concrete joints

Basic Design And Resilience Most Important Factors

The principal function of waterstop is to keep concrete joints watertight where hydrostatic water pressure is present. To be effective, and to perform its function under widely varying conditions, the waterstop must:

1. **Be designed in such a way that it will maintain a "pressure seal" when the joint is opened up or compressed, or when hydrostatic pressure is exerted against it.**
2. **Be made of a material that is inherently stable and resilient...that will retain its resiliency and strength under wide ranges of temperature.**

There is general agreement by many governmental and private specifying authorities, after years of testing and actual installation, that the dumbbell design of waterstop (below) is mechanically superior to any which has been developed to date. The design provides a self-sealing action, because as the concrete contracts and the joint opens up, the outer edges of the dumbbell bulbs become more tightly engaged with the concrete, insuring a tighter seal as the tension increases, due to movement either in the joint or increasing water pressure on one side of the joint. In effect, the greater the longitudinal pull or pressure on one side, the more tightly the dumbbell ends are pulled and squeezed against the concrete. The simpler dumbbell design of the rubber waterstop allows full strength and contact with the concrete surrounding the waterstop. The larger design also provides for maximum strength to resist higher pressures on the web of the waterstop across the joint opening.



Rubber and vinyl are the most commonly used waterstop materials. For the majority of applications, rubber is the most satisfactory material. Being a thermosetting material, rubber is more resilient and "live"...will maintain a constant pull against the retaining edges (bulbs) as the joint opens up or water pressure increases. Vinyl is a thermoplastic compound and tends to take a "set" after it has been stretched, will float in the joint cavity, and have less resistance to the passage of water. When higher temperatures are present, such as in oil storage tanks, where oil is kept at temperatures around 150°F., the vinyl material, unless specifications are rigidly written, will soften and lose strength, causing a failure of the waterstop.

Field Splicing of Dumbbell Type

Servicised Products Corporation has developed a new Union which provides a simple method of joining the ends of dumbbell waterstops, making it just as fast and easy to field splice rubber and neoprene waterstop as the joining of the polyvinylchloride types.

The Union is made in the same cross-section, and from the same material as the waterstop. It is hollow, except for a solid web at the center. After adhesive is applied to the waterstop ends, they are inserted in the Union and pushed against the centering web. The splice is then clamped together until the adhesive has set. This completes the splice.

Dumbbell type rubber and neoprene waterstop are fully described in a special Waterstop Circular available from Servicised Products Corporation upon request. The Union and an interesting new development, Split Type, are also illustrated and described in the circular. Write for it today.

SERVICISED PRODUCTS CORPORATION
6051 W. 65th Street, Chicago 38, Illinois

said the amount labor gets paid for performing unnecesary services is a matter for negotiation.

In line with this decision, it has been held that special payments for use of labor-saving devices are not an "exaction" and that payments for unnecessary services under the terms of a union contract are the lawful result of "give and take" in collective bargaining.

At least one group, the Building Contractors Association of New Jersey, is actively trying to get Congress to strengthen the featherbedding ban. The problem, it says, involves the basic principle of a "fair day's work for a fair day's pay" and featherbedding "cannot be reconciled with this principle."

But there is no such proposal in the labor bills now before Congress.

It looks as if the "Ten Commandments" will remain the only effective answer to featherbedding and related problems for some time to come.

"I have found that where management pushes the code," one contractor observes, "it can look for support from the international unions. The top men want the locals to live up to the code. We can look for real advance if we can get the code into new contracts, particularly on featherbedding and travel time provisions."

Another employer representative feels the code has "afforded a means of approaching the average union man with words of his own leadership and without fear of a crackdown from the National Labor Relations Board." Contractors in another area are finding a "better frame of mind" among union officials and "more understanding" of their responsibility in the industry.

Some contractors remain pessimistic about the code's future. They say labor is "cynical" and gives "only lip service" to the code.

At the local level there still are contractors and labor leaders who profess unfamiliarity with the code. And there has been almost no reporting of code violations to the AFL-CIO Building Trades Department so that "corrective steps may be taken."

Those who have given the "Ten Commandments" serious consideration, however, recognize that the slow process of education and refinement must continue before there is any widespread acceptance of the code.

A member of one local contractor group predicts the code will eventually become "part and parcel" of the industry. He says: "It is something new. You must be reasonable and patient. You can't just drop something like that down and say, 'Here it is'."

(*Labor continued on page 90*)

LOOK *at a floor treatment that cures, hardens, seals*

3-WAY PROTECTION, 1-APPLICATION

The Western Electric Plant floor shown above resisted grease, paint, plaster, mud, ice and abrasive traffic during building construction with one application of one product! It was cured, hardened and sealed with WEST CONCRETE FLOOR TREATMENT.

WEST CONCRETE FLOOR TREATMENT saves labor, materials and time. It can be applied immediately after troweling. Avoids delays after pouring. Replaces as many as three separate products and applications. Eliminates labor required for cleaning after delayed drying between the use of separate products.

WEST CONCRETE FLOOR TREATMENT is a quick drying formulation. Even spreading. Easily applied by unskilled labor. It enables newly-laid wet concrete to retain 95% of its moisture. This permits curing and hardening while sealing and dustproofing the surface. Meets ASTM Specification C-309.

WEST CONCRETE FLOOR TREATMENT has been used successfully, for many years, in major private and public construction projects throughout the country.

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Construction Workers Lag Behind on Paid Holidays

Nine out of ten major labor agreements provided paid holidays in 1958—and 72% of the agreements listed seven or more holidays.

Major exception to the paid-holiday practice is the construction industry, largely because of its seasons and casual nature, with workers shifting from employer to employer.

A recent study by the Labor Department's Bureau of Labor Statistics shows a rapid post-war growth in paid vacations. It indicates that:

• **The number of paid holidays is increasing.** Only one-fourth of major agreements provided seven or more paid holidays in 1950. In 1958, 72% of them did.

• **There is more experimenting with new types of paid holidays.** Being tried are longer traditional holiday celebrations, personal holidays such as birthdays, recreational holidays, and floating holidays set by agreement.

• **Fewer industries lack paid holidays.** The construction industry trails significantly behind the others. Only 12% of 148 major agreements concluded in the industry last year provided for holidays with pay.

• **The rate of pay for working on holidays is increasing.** Predominant practice now pays workers double-time-and-a-half or triple time.

The traditional six holidays are: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving and Christmas. Others frequently recognized are: Washington's Birthday, Veterans Day or Armistice Day, Good Friday, Columbus Day, Lincoln's Birthday and Election Day.

Labor in Brief . . .

• **Wage equalization**—Efforts of New Jersey building contractors to equalize area wage rates show up in two new labor contracts in adjacent areas. Bricklayers in one get nothing this year and 15 cents next year in a two-year contract; bricklayers in the other get 15 cents each year in a three-year contract, inclusive of a 5-cent boost in health and welfare.

• **Bid shopping**—The plumbers union and the National Association of Plumbing Contractors register vigorous opposition to H. R. 176, the bid-shopping bill now before Congress. They oppose a single contract system of federal construction, a five-day bid-shopping grace period and a five-foot clause restricting contract terms.

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.40 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record
P.O. Box 12, New York 36, N. Y.

Bids: June 2, 1959.

Contract GWB-190.006

THE PORT OF NEW YORK AUTHORITY
GEORGE WASHINGTON BRIDGE
LOWER LEVEL EXPANSION
NEW YORK APPROACH
SECTIONS 5 AND 6

Pursuant to the provisions of the Highway Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals for the construction of Sections 5 and 6 of the approach roadway system in New York for the lower level expansion of the George Washington Bridge will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, June 2, 1959 at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the Office of the Assistant Chief Engineer for Design of the Authority, Room 1115. Documents will be furnished upon deposit of $50.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $50.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman
New York, April 30, 1959

Bids: May 28, 1959.

Government of the Virgin Islands

Advertisement for Bids for Construction of Trunk and Outfall Sewer and Pumping Station at Christiansted, St. Croix, Virgin Islands.

Project No. SC-41-57

Sealed bids in duplicate for Construction of Trunk and Outfall Sewer and Pumping Station at Christiansted, St. Croix, Virgin Islands will be received until 2:00 P.M. Atlantic Standard Time, May 28, 1959 in the office of the Division of Procurement, Old Grammar School Building, Kings Street, Christiansted, St. Croix, Virgin Islands (First Floor—Western Section), and then publicly opened.

The work consists of two Phases as follows:

Phase 1 includes the construction of approximately 1069 l.f. of 15" Vitrified Clay Pipe Gravity Sewer; a New Pumping Station; an Outfall Sewer constructed of approximately 170 l.f. of 10" Cast Iron pipe having standard mechanical joints, and approximately 2633 l.f. of 10" Cast Iron pipe having Locked Type Mechanical Joints; approximately 140 l.f. of 12" Vitrified Clay Pipe By-Pass Sewer from New Pumping Station to the Shore; Appurtenances; and Incidental Work.

Phase 2 includes the construction of approximately 800 l.f. of 8" Cast Iron Pipe Force Main having Standard Mechanical Joints; approximately 261 l.f. of 12" Vitrified Clay Pipe Gravity Sewer; New Pumps and Piping Alterations at the Existing Pumping Station; Appurtenances; and Incidental Work.

Plans, specifications and other Contract Documents are open for public inspection at the office of the Commissioner of Public Works, Charlotte Amalie, St. Thomas, Virgin Islands; Tippetts-Abbett-McCarthy-Stratton, Engineers, 375 Park Avenue, New York 22, N. Y., and at their office in the Edificio Rexach, Carr. No. 2, San Juan, Puerto Rico; Deputy Public Works Advisor, Office of Territories, Department of the Interior, Interior Building, Washington 25, D. C.; A.G.C. office, 1113 Congress Building, Miami, Florida; Division of Procurement, Old Grammar School Building, Kings Street, Christiansted, St. Croix, Virgin Islands (First Floor—Western Section); Builders Exchange, 46 N.E. 6th Street, Miami, Florida; and, Housing and Home Finance Agency, Community Facilities Administration, 1608 Ponce de Leon Avenue, Santurce 17, Puerto Rico.

Plans and specifications may be procured from the Division of Procurement, Old Grammar School Building, Kings Street, Christiansted, St. Croix, Virgin Islands, (First Floor—Western Section); Tippetts-Abbett-McCarthy-Stratton, 375 Park Avenue, New York 22, N. Y., and at their office in the Edificio Rexach, Carr. No. 2, San Juan, Puerto Rico, upon deposit of Fifty Dollars ($50.00) which will be refunded to bona fide bidders upon the return of the plans and specifications in good condition within twenty (20) calendar days from the date of bid opening. To persons who procure plans and specifications upon the deposit of $50.00 and who do not submit a bid, one-half the amount deposited will be refunded upon the return thereto in good condition within ten (10) calendar days from the date of bid opening. No refund will be made for return after that time.

Each bid must be accompanied by a satisfactory bid security (certified check or bid bond) in an amount not less than 5% of the total bid in dollars and cents.

The Government reserves the right to accept or reject any and all bids.

DANIEL W. AMBROSE
Contracting Officer

Bids: June 18, 1959.

Barges and Towing Service

Notice is hereby given that sealed proposals for furnishing, maintaining and operating one or more barges and towing service for the transportation of sewage sludge from a private dock on Arthur Kill in the City of Elizabeth, N. J., to a point at sea for a period of one, two, three, four, five, six, seven, eight, nine and ten years at the option of the Joint Meeting, said proposals to be received by the Joint Meeting in the Conference Room, Maplewood Municipal Building, Valley Street, Maplewood, N. J. on Thursday, June 18, 1959 at 4:00 o'clock in the afternoon Eastern Daylight Saving Time at which time they will be publicly opened and read.

Each bidder is required to submit at least one bid for the periods of one to five years inclusive and at least one bid for the periods of six to ten years inclusive.

Specifications, proposal blanks, and forms of questionnaire may be examined and obtained at the Office of the Secretary of the Joint Meeting Room 312, City Hall, Newark, N. J. upon the payment of $10 for each set. The deposit will be returned only to bidders submitting bona-fide proposals or who return the specifications in good condition within ten days after the opening of bids.

No bids will be received unless made in writing on blanks furnished, and accompanied by a deposit of $5,000.00 by certified check made payable to the Joint Meeting.

The Joint Meeting has the right to reject any or all proposals and reserves the right to waive any informality in the bid and to accept the bid, which in its judgment best serves the interests of the contracting municipalities.

By order of the Joint Meeting
MILO S. BORDEN, Chairman
Edward P. Decher
Secretary

OFFICIAL PROPOSALS

Bids: May 14, 1959.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, Public Buildings Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A. M., advanced standard time, which is nine-thirty o'clock A. M., eastern standard time, on the 14th day of May 1959, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1; G. L. NICKERSON; District Engineer, 353 Broadway, Albany 1, New York						
Albany	FASH 59–8 FAC 59–5	Albany South Side Route, Pt. 1 City of Albany: Fuller Road Alternate Proj. U-1132(1)	0.56	9" Cem. Conc. Pavt. 2@ 24' Wide	$26,000 Plans $5	$468,000
Schenectady	FATC 59–1	City of Schenectady: Crosstown Conn. FAC 57–18 Schenectady Crosstown Conn. Pt. 2 Fash 57–20 Proj. U-323(16)	1.99	Traffic Signal Devices	$5,500 Plans $5	99,000
Warren (Int. Tour. Rte. 87)	FISH 59–9	Interstate Route 502 (Hudson River to Gurney Lane) Proj. I-1119(27	7.32 (6.32 Acc.)	9" Cem. Conc. Pavt. 2 @ 24' Var. Wide = 7.25 Mi. Miscell. Work = 0.07 Mi. (Acc.= 2.19 Mi. Cem. Conc. Pavt; 1.72 Mi. Asp. Conc. Pavt. and 2.41 Mi. Bit. D.S.T. Gravel) 10 Hwy. Sep. Struct. Comp. I-Beams 3 Sp. 130', 3 Sp. 130', 3 Sp. 126.5', 3 Sp. 126.5', 4 Sp. 214.5', 3 Sp. 127.1', 3 Sp. 127.1', 8 Sp. 272.4', 3 Sp. 146' and 3 Sp. 133'	$408,000 Plans $10	7,430,000
DISTRICT No. 2, LACY KETCHUM; District Engineer, 109 N. Genesee Street, Utica 1, New York						
Hamilton (Rte. 10)	RC 59–36	Long Lake Hamlet, S.H. 9015 Grove-Blue Mountain Lake, S.H. 8301	3.50	Asphalt Concrete Type 1A Pavt.	$7,500 Plans $5	138,000
Herkimer (Rte. 28)	RC 59–37	Herkimer-Middleville, S.H. 460 Middleville Village, S.H. 869 Middleville Village & Newport Village, S.H. 5064	6.00	Asphalt Concrete Type 1A Pavt.	$10,000 Plans $5	184,000
Madison	FASS 59–12	New Woodstock-Erieville Co. Rd. No. 52 Proj. S-536(1)	5.47	Bit. Double Surf. Treat. Pavt.	$14,000 Plans $5	259,000
Oneida (Rte. 5)	RC 59–38	Kirkland-New Hartford, S.H. 9205 Utica-Oneida Castle Pt. 1, S.H. 250 New Hartford Village, S.H. 5052	2.07	Asphalt Concrete Type 1A Pavt.	$7,500 Plans $5	135,000
DISTRICT No. 3; EARLE E. TOWLSON; Acting District Engineer, 333 E. Washington Street, Syracuse, New York						
ONONDAGA	FAC 59–4	City of Syracuse: Bear Street Arterial Highway Project U-1154(1)	0.78	Asphalt Concrete Type 2A Pavt. Comp. Steel Girder Bridge 5 Spans—Total 591'	$66,000 Plans $5	1,197,000
DISTRICT No. 6, JAMES H. THOMAS, District Engineer, State Office Bldg., 30 West Main Street, Hornell, New York						
Allegany (Rte. 244)	R.C. 59–39	Belmont-Phillips Creek, Pt. 1, S.H. 1559 Belmont–Phillips Creek, Pt. 2, S.H. 8375 Phillips Creek–Alfred, S.H. 8375	11.61	Asphalt Concrete	$26,000 Plans $5	477,000
DISTRICT No. 7; ROBERT W. SWEET; District Engineer, 444 Van Duzee Street, Watertown, New York						
Franklin (Rte. 3 & 365)	RG 59–34	Wawbeek–Saranac Lake, Pts. 2 & 3, S.H. 8437 Wawbeek–Saranac Lake, Pt. 1 S.H. 8491	11.57	Asphalt Concrete Type 1A Pavt.	$22,000 Plans $5	393,000
St. Lawrence	O.B.A. 59–5	U. S. Approach to the Ogdensburg Bridge	0.73 (0.23 Acc.)	Asphalt Conc. Ty. 1A Pavt. = 0.93 Mi. 10" Cem. Conc. Pavt. Var. Wide = 0.03 Mi.	$20,000 Plans $5	368,000
DISTRICT No. 8; KURT G. RAUER; District Engineer, Pleasant Valley Road, Poughkeepsie; New York						
Columbia	T.S.P. 59–1 R.C. 59–80	Taconic State Parkway Sect. 9C & 9D (Rte. 23 to Rte. 203); Harlemville–Mellenville, S.H. 1230 Chatham–Spencertown, S.H. 540	11.92 (4.33 Acc.)	9" Cem. Conc. Pavt. Var. Wide = 1.30 Mi. Asph. Conc. Pavt. = 1.37 Mi. Gravel with Calc. Chloride Treat.= 0.43 Mi. Grad & Drain = 13.15 Mi. 1 RR Sep. Comp. I-Beam 3 Sp. 161.9' 4 Hy. Sept. Comp. I-Beams 2 Sp. 136.3', 3 Sp. 122' 3 Sp. 133.1' and 3 Sp. 119.3' (Ave.) 1 Hy. Sep. R.C.Rig.Frame 105' 1 Br. Comp. I-Beam 52' 1 Br. Reinf. Conc. Box 55.5' 1 Br. Reinf. Conc. Slab 30'	$360,000 Plans $10	6,593,000
Ulster (Rte. 9W)	RC 59–41	Old Post Road, S.H. 310 Old Post Road Pt. 4, S.H. 5508	3.78	Asphalt Concrete Pavt.	$12,000 Plans $5	230,000
DISTRICT No. 9; JOSEPH C. FREDERICK; District Engineer, 71 Frederick Street, Binghamton; New York						
Sullivan (Rte. 17 & 52)	T.C. 59–2	Monticello-Liberty Pt. 2, S.H. 5322 (Intersection with S.H. 1691)		Furnishing & Erecting Traffic Signals	$1,300 Plans $5	23,000
DISTRICT No. 10, M. E. GOUL; District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Bronx (Int. Tour. (Rte. 95)	FIBE 59–1	Interstate Route Connection 511, Bruckner Expressway (Layton Ave. to New England Thwy.) Sect. 2, Cont. 1 and Throgs Neck Expressway Connection Project I-1068(22)	1.46 (5.40 Acc.)	9" Cem. Conc. Pavt. (Carb. Black) 2 @ 36' Var. Wide = 1.46 Mi. (Access = 1.68 Mi. Cem. Conc. Pavt & 3.72 Mi. Sheet Asphalt Pavt.) 6 Hy. Seps. Comp. W-F Beam 2 Sp. 123', 2 Sp. 177.1', 2 Sp. 143.3', 2 Sp. 131.5', 2 Sp. 132.5' and 1 Sp. 60.3' 4 Ped. Overpasses I-Beams 5 Sp. 363', 3 Sp. 194.2', 5 Sp. 277.1' and 6 Sp. 302.4'	$635,000 Plans $10	$11,547,000
Nassau & Suffolk (Rtes. 106, 112 & 27)	FARC 59–35	Jericho-Oyster Bay, S.H. 9021 Port Jefferson-Coram; S.H. 912 Quogue-Southampton, S.H. 1274 Proj. S-500(3); S-552(1) and (3)	1.10	Drainage Facilities	$19,000 Plans $5	240,000
Nassau & Suffolk	SAGSP–RC59–1 SMSP–RC 59–1 SSP–RC 59–2 NSP–RC 59–1	Northern State Parkway: Sagtikos State Parkway; Sunken Meadow Spur Parkway and Southern State Parkway	30.05	Landscaping and Misc. Work	$14,000 Plans $5	257,000
Suffolk	B.P. 59–71	Ocean Beach Town of Islip	1.00	Beach Protection Artificial Beach Nourishment	$4,000 Plans $10	74,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City. The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit. Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

Read the Official Proposal Columns of

ENGINEERING NEWS-RECORD

This Week and Every Week

OFFICIAL PROPOSALS

Bids: June 2, 1959.

City of Linden, New Jersey

NOTICE TO BIDDERS

Sealed proposals for Construction of Storm Drain and Appurtenances in connection with Contract 3 of Storm Drainage Relief Project—Eighth Ward will be received by the Common Council of the City of Linden, New Jersey, at a meeting to be held in the Council Chamber at the City Hall 8:30 P. M. E.D.S.T., on June 2, 1959, and then publicly opened and read. No proposal will be accepted after said hour.

The work will include the construction of about 656 lin. ft. of 120 in. diameter reinforced concrete drain (or a 7 ft. by 11.5 ft. reinforced concrete drain as an alternate) and appurtenant structures along the Staten Island Rapid Transit Railway, connecting to the northwesterly terminal of the existing drain. The work will also include the construction of about 202.5 ft. of 5.75 ft. by 8 ft. twin reinforced concrete drain crossing under the Central Railroad Company Main and Yard tracks and connecting with the southeasterly terminal of the existing drain.

Information for Bidders, Proposal Forms, Specimen Contract, Plans, Specifications and other pertinent Contract Documents may be examined at the office of the City Engineer, City Hall, Linden, N. J., and at the office of Alexander Potter Associates, Consulting Engineers, 50 Church Street, New York, between the hours of 10 A.M. and 4 P.M., daily except Saturdays and holidays and there obtained upon making a deposit of Twenty five ($25.00) dollars. Full refund will be made to actual bidders for return of one set, in good condition within (15) days. Half of this deposit will be refunded to non-bidders. Extra copies of Specifications may be obtained at a cost of ten ($10.00) dollars each and extra copies of the drawings at a cost of One (1) dollar each which sums will not be refunded.

BIDS AND BID SECURITY: All bids must be made upon standard proposal forms contained in the bidding documents and must be enclosed in sealed envelopes bearing the name and address of the bidder and a designation of the proposed work on the outside of such envelope addressed to the Council of the City of Linden. Each bid must be accompanied by a certificate of a responsible surety company executed by the bidder and such surety company guaranteeing that the bidder will execute the contract if it is awarded to such bidder and that said surety company will provide the performance bond recited in R.S. 2A:44-147 in the full amount of the contract price.

No bid may be withdrawn for any reason whatsoever after it has been opened and read at the time and place above designated during the period of forty-five (45) days following the public opening and reading of such bid.

In the event the successful bidder shall fail to enter into a contract with the City of Linden or fail to file the required performance bond within ten (10) days after the giving of notice on behalf of the City of Linden to such bidder that the award has been made to said bidder, the City of Linden may award the contract to the next lowest responsible bidder or in its judgment may proceed to re-advertise for new bids and the aforesaid successful bidder and surety company shall be responsible to the City of Linden for all of its expenses, losses and damages by reason of such failure on the part of the bidder and surety, or either of them. Extension of time to enter into the contract and failure to do so after such extension of time shall not in any way affect the rights of the City of Linden against the bidder or surety company.

The Council reserves the right to reject any and all bids as may be deemed to be in the best interest of the City of Linden. The Contractor shall enter into the form of contract contained in the bidding documents, which may be inspected in the office of the City Engineer and the Consulting Engineer, and the same shall include and shall be regarded as including, whether the same is specifically set forth or not, the provisions of R.S.34:10-1 (Chapter 230 P. L. 1932) and all state laws and labor regulations relating to municipal contracts.

BY ORDER OF THE MAYOR AND COMMON COUNCIL OF THE CITY OF LINDEN, NEW JERSEY
Francis H. Dunn, City Clerk

Dated: April 30, 1959.

OFFICIAL PROPOSALS

Bids: May 21, 1959.

Power Authority of the State of New York

NIAGARA POWER PROJECT
ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERY
OF
INTAKE GATES AND STOPLOGS
FOR
TUSCARORA POWER PLANT
SPECIFICATIONS NO. PA-N-23018
NIAGARA CONTRACT NO. NP30

NOTICE TO CONTRACTORS: The Power Authority of the State of New York will receive sealed proposals for the furnishing and delivery thereof F.O.B. destination, Niagara Falls, Niagara County, New York, of the Intake Gates and Stoplogs for the Tuscarora Power Plant until 10:30 A.M. Eastern Daylight Saving Time on the 21st day of May, 1959, at the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place proposals will be opened and read aloud.

The work consists of fabricating, furnishing and delivery thereof of approximately 1,245 tons of structural steel intake gates and stoplogs for the Tuscarora Power Plant.

Delivery of the above items will be required beginning September 1, 1960.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, at the Coliseum Tower, 18th Floor, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten Dollars ($10.00) per initial set of contract documents, and Five Dollars ($5.00) per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, and in the office of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and may be inspected by prospective bidders during office hours.

Bids must be made and returned in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee (Certified Check or Bid Bond) will be required with each bid in an amount not less than 20 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: May 18, 1959.

FEDERATION OF MALAYA CAMERON HIGHLANDS SCHEME CONTRACT NO. 9

Tenders are invited from overhead line construction firms for the supply and erection of Transmission Lines to be installed on behalf of the Central Electricity Board, Federation of Malaya.

The The Contract now advertised will comprise approximately 100 route miles of mixed twin single circuit and double circuit 132 kV Lines.

Tenders are invited only from firms who are prepared to undertake the supply and erection of the complete lines.

A short precis of the extent of the work for which complete and comprehensive offers are invited may be had on application to Messrs. Preece, Cardew & Rider, 8, 10 & 12 Queen Anne's Gate, London, S.W.1.

Tender documents, which will be available from 18th May, 1959 until 6th July, and returnable by 18th September, 1959, may be obtained from the same address on receipt of a deposit by cheque for £20 in favour of Preece, Cardew & Rider.

The deposit will be refunded on receipt of a bona fide Tender and return of all documents to be returned.

At a later date offers will be invited for Switchgear, Transformers and Cables. Persons interested in such should NOT now apply, but await further advertisements.

The Central Electricity Board do not bind themselves to accept the lowest or any Tender, nor will they be responsible for any costs incurred by Tenderers in making their Tender.

OFFICIAL PROPOSALS

Bids: June 30, 1959.

Republic of Iraq Development Board and Ministry of Development Basrah Power Project Contract No. 13A Work Shop Machine Tools

The Development Board and Ministry of Development of Republic of Iraq, invite tenders for the supply and delivery of Work Shop Machine Tools.

Tender documents may be obtained from Iraqi embassy, Washington, on payment of I.D. 10/000 (Ten Iraqi Dinars) from 1st April 1959 until 1st June 1959.

Submission date of tenders is on 30th June 1959.

Further information on this tender may be obtained from Iraqi embassy, Washington.

Minister of Development.

U. S. Government

INVITATION FOR BIDS: Sealed bids, in triplicate, will be received at the office of the Regional Director, CFA, Housing and Home Finance Agency—OA, Room 805, 346 Broadway, New York 13, N. Y., until 2:00 o'clock P.M. (E.D.S.T.) on the 19th Day of May 1959, and then publicly opened and read aloud for furnishing all labor and material and performing all work for the construction of an Elementary School Addition at Fort Jay, Governor's Island, New York, including General Construction, Heating and Ventilation, Plumbing, Electrical Work and Fixtures and Site Work. The Instructions to Bidders, Form of Bid, Form of Contract, General Conditions, Specifications, Plans, Form of Bid Bond, Performance and Payment Bond may be examined at the offices of the project architect Knappe and Johnson, 2110 Northern Boulevard, Manhasset, New York and Two Overhill Road, Scarsdale, New York, or at the office of the Regional Engineer, Housing and Home Finance Agency—OA, Room 814—346 Broadway, New York City, N. Y., and copies thereof obtained at any of said offices upon payment of $7.50 for each complete set of documents, which fee shall not be refunded and the documents shall remain the property of the prospective bidders. Such fee shall be in the form of a certified check, bank cashier's check or postal money order, made payable to the Housing and Home Finance Agency—OA.

Ralph B. Cornell
Regional Director
Community Facilities Activities

Sealed bids will be received in the office of the Engineering and Construction Director, Panama Canal Company, Balboa Heights, Canal Zone, until 1:00 PM, E.S.T., May 22, 1959, and at that time publicly opened for the following work: Construction of 57 masonry housing units consisting of 20 three-bedroom, 2 story duplex, 27 two-bedroom, 2 story duplex units, 6 three-bedroom, 1 story single units, and 4 four-unit bachelor apartments. The work also includes grading of townsite area, roads, sidewalks, landscaping, water, sewer, electrical distribution systems, and other appurtenant facilities. Plans and specifications are available for examination in the Procurement Office, Panama Canal Company, 21 West Street, New York 6, N. Y. These data may be obtained upon payment of $25.00 deposit, which will be refunded when data are returned. For further information, contact this office. Telephone Bowling Green 9-5380, extension 73. Reference: PC 59-64.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5191) will be received at Helena, Montana, until 10 a.m., Mountain Standard Time, May 28, 1959, for furnishing labor and materials for rehabilitation of Sherburne Lake Dam outlet works, Milk River Project, Montana. Location near Babb, Montana. Principal items are 4,100 cu. yds. excavation; 6,410 cu. yds. dike embankment, zones 1 and 2; 1,050 bbls. furnishing and handling cement; 600 cu. yds. concrete in structures; and other work. Completion time 400 days. For particulars, address Bureau of Reclamation, P. O. Box 2553, Billings, Montana; P. O. Box 551, Helena, Montana; or Building 53, Denver Federal Center, Denver 25, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS enable you to get the greatest variety of bids —and so to get the lowest prices consistent with the best work.

OFFICIAL PROPOSALS

Bids: May 13, 1959.

Notice to Bidders

Sealed proposals for the furnishing of all labor, materials, equipment and services for the construction of Sanitary Sewerage Improvements for Ashland, Kentucky, will be received by the City of Ashland until 8:00 P.M., E.S.T., Wednesday, May 13, 1959, at the City Hall in Ashland, Kentucky, at which time they will be publicly opened and read aloud.

The program of work for which bids are to be submitted includes four contracts. Contract I is for collection sewers involving approximately nine (9) miles of 8", 10", 12", 15", 18" and 24" pipe together with all appurtenances. Contract II is for interceptor sewer work involving approximately two and one-half (2½) miles of 15", 18", 21", 24" and 36" pipe in relatively deep cuts. Contract III includes the construction of seven pumping stations ranging in size from 100 GPM to 7,700 GPM. Contract IV is for the construction of a primary type sewage treatment plant having a capacity of approximately 6.5 MGD. Bidders must submit bids on one complete contract but may bid on any combination of more than one contract.

Plans, specifications and contract documents may be examined or obtained from J. Stephen Watkins, Consulting Engineers, Post Office Box 1357, Lexington, Kentucky, upon receipt of a deposit of One Hundred Twenty Five ($125) Dollars for each full set of documents for all four contracts.

The deposit for documents for Contract I, II or III separately is Thirty Five ($35) Dollars each. The deposit for the documents for Contract IV separately is Fifty ($50) Dollars. Prime contractors who make legal bids on the project will be entitled to a refund of their entire deposit on the first two full sets of documents provided the documents are returned in good condition within ten (10) days after bids are opened. All other deposits will be returned after deducting an amount equal to the actual cost of reproduction and handling of the documents upon their return in good condition within ten (10) days after the bids are opened. Excerpts of plans on Contract IV will be furnished at a charge of eighty (80¢) cents per sheet (not refundable) and pertinent specifications without charge.

Bids shall be accompanied by a certified check or a bid bond in an amount equal to ten (10%) per cent of the bid to insure execution of the contract for which the bid is made. In case the bid is not accepted, the check or bid bond will be returned to the bidder, but if the bid is accepted and the bidder shall refuse or neglect to enter into a contract with the City of Ashland, Kentucky, within ten (10) days from the time he is notified of the acceptance of his bid, the check or bid bond shall be forfeited to the City of Ashland.

The successful bidder or bidders will be required to furnish an acceptable performance bond in the amount of one hundred (100%) per cent of the contract price. Liquidated damages in the amounts set out in the specifications and contract documents will be assessed for failure to complete the work within the contract completion times specified therein.

The City of Ashland, Kentucky, reserves the right to reject any and all bids, the right to waive informalities, and the right to negotiate with the apparent qualified best bidder or bidders to such extent as may be necessary.

CITY OF ASHLAND, KENTUCKY
By: F. K. Kyle
City Manager

Contractors Watch This Section—

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

EMPLOYMENT OPPORTUNITIES

NATIONAL COVERAGE

DISPLAYED RATE:

The advertising rate is $39.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured ⅞" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

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$2.40 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Position Wanted ads take ½ of above rate.

Box numbers—count as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

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ADDRESS BOX NO. REPLIES TO: Box No. Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. BOX 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

• POSITIONS VACANT

Asst. Prof. of Civil Engineering to teach fluid mechanics. Applicant must have MS in CE. Write to John A. Oakey, N. D. State College, Fargo, N. D., giving personal record and minimum acceptable 9 months salary.

Senior Civil Engineer for design work involving storm sewer, sanitary sewer, street paving and general municipal engineering projects. Salary range $6800 to $8800 with excellent fringe benefits. Degree in civil engineering plus six years experience required. Submit resume to City Engineer, City Hall, Schenectady, N. Y.

Engineer Estimator & General Supt. Retiring Sewer Contractor with considerable excavating Equipment desires 2 or 3 experienced supervisory men willing to invest in themselves to continue and expand a successful business established for 30 years. Experience more essential than cash. Good opportunity to get into business. Send resume of experience. P-1496, Engineering News-Record.

Mech. Eng: Capable handling all phases heavy equipment and process piping including direct field supervision on site $14,000 to 18,000 year starting salary, plus job bonus. Permanent connection for a capable man with small, aggressive well established company. First job assignment on East Coast. Immediate employment. Call or write: D. F. Gordon, 210 West 28th Street, Baltimore 11, Maryland, Tel—TUxedo 9-0945.

To EMPLOYERS Who Advertise for MEN:

Frequently, when there are many applicants for a position, only the most promising letters are acknowledged. The other applicants never know whether their letters reached a prospective employer or not. These men often become discouraged, will not respond to future advertisements and even question their bona fide character.

Every Advertisement Printed in the EMPLOYMENT SECTION Is Duly Authorized.

You can help keep our readers interested and get better returns to your advertising in this section if you acknowledge each reply—in plain envelopes, if you wish.

Classified Advertising Division

McGRAW-HILL PUBLISHING CO., Inc.

"Put Yourself in his place."

• POSITIONS VACANT

Resident Engineer Wanted. Graduate engineer with experience in supervision of construction on water, sewerage, steam power and/or building construction. Location generally midwest, but assignments may be to other areas of U. S. Established midwest consulting engineering firm. Reply in detail to P-1293, Engineering News-Record.

Civil engineers needed with two to five years experience in the municipal engineering consulting field. Permanent positions open with long established firm. Location in small college community in Colorado. Salary commensurate with experience and qualifications. Send complete resume of education and experience. Replies confidential if requested. P-1567, Engineering News-Record.

Wanted: Engineer to teach in pre-engineering program, Dutchess Community College, Poughkeepsie, New York. Qualifications: Masters Degree, will consider B.S. Degree with experience. Salary: $6500-7000 for academic year. Contact Dean Brick, Grover 1-4500.

Graduate Civil Engineer with 3 to 4 years highway experience for permanent position in West Virginia. Duties include office work and supervision of survey. Send resume and salary requirements to P-1555, Engineering News-Record.

Public Works Director—Saratoga, Calif. Population 15,276; 45 miles of road; requires registered California Civil Engineer; 5 years general municipal experience. Salary—$700. to $800. monthly. All applications listing qualifications in writing only to City Administrator. Box 337, Saratoga, California.

Career opportunity for young graduate Chemical Engineer to learn cement industry. Opportunity for advancement with expanding manufacturer. Desire man interested in eventually assuming top management position. Write giving education past experience (if any) and other personal data. P-1554, Engineering News-Record.

Experienced Architects and Architectural Draftsman. Excellent opportunity with established consulting firm in Middle West. State education, experience and required salary. Reply to P-1545, Engineering News-Record.

Resident Engineer wanted for half-million dollar intercepting sewer (including three lift stations) project, due to start immediately. Must be able to stake out the work and prepare estimates. Reply (stating experience, salary desired, and when available) to Fred A. Grier, Jr., Chairman, Salisbury Incinerator and Sewage Treatment Plant Commission, Salisbury, Maryland.

Experienced superintendent and foreman for highway construction work in Conn. Excellent opportunity for advancement. Call Hartford, Conn. JAckson 7-3203, Charter Oak Construction Co., Inc.

Instrument Eng.: Design engineer with experience on actual design and installation of process pipe controls systems. High and low pressure air, boiler and steam systems, and related. Top salary for right man. A small firm where merit won't get buried. Call or write: D. F. Gordon, 210 West 28th Street, Baltimore 11, Maryland, Tel — TUxedo 9-0945.

Civil Engineer—Graduate with about 3 to 5 years experience. Theoretical and supervisory work on structures in consulting engineer's office in Northeast New York. Forward detailed resume, expected salary, and date of availability to Summers, Munninger & Molke, 116 Washington Avenue, Albany, New York.

(Continued on page 95)

ENGINEERS AND MATERIALS INSPECTORS

WANTED

TVA has openings for experienced civil, structural, electrical and mechanical engineers in its Division of Design located in Knoxville, Tennessee, and for electrical inspectors of materials located in district offices in Pittsburgh, Schenectady, and Milwaukee.

These positions are at the following grades and rates of pay:

Civil Engineers, grade SD-3	**$6800**	Highway and railroad bridge design
Civil Engineers, grade SD-2	**$5900**	Design civil features of steam and hydroelectric stations
Mechanical Engineers, grades SD-2, -3 and -4	**$5900-$7950**	Design mechanical features of heavy equipment for steam and hydroelectric stations
Electrical Engineers grades SD-2 and -3	**$5900-$6800**	Design electrical features of steam-electric and hydroelectric projects
Inspectors of Materials (Electrical), grades SE-5 and -6	**$5550-$6325**	Make engineering inspection and tests of electrical machinery, equipment, and materials purchased for the TVA construction program

The engineering jobs require a college degree in engineering or its equivalent with from one to five years of design and specification experience. The inspector of materials jobs require a college degree in electrical engineering or its equivalent training and experience in making engineering inspection and tests of electrical equipment and materials.

All jobs carry automatic within-grade increases for satisfactory service, liberal vacation leave, sick leave, and retirement benefits. *Write to*

TENNESSEE VALLEY AUTHORITY, Division of Personnel, Knoxville, Tennessee.

ENGINEERS

OVERSEAS

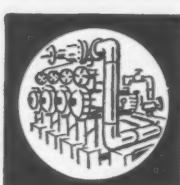
DAM ENGINEER
POWERHOUSE ENGINEER
on
MULTI-PURPOSE DAM PROJECT in THAILAND

Require qualified engineer with responsible construction experience in placement of reinforcing steel, mass concrete pours, mass concrete cooling on large dams or other mass concrete projects. Degree preferred but not essential. Must pass physical examination and security investigation.

- EXCELLENT SALARY
- OVERSEAS BONUS
- COMPLETION BONUS
- EXTRA VACATION ALLOWANCE
- QUARTERS & SUBSISTENCE
- MEDICAL CARE & INSURANCE

Write fully, include complete salary information to:

SVERDRUP & PARCEL INTERNATIONAL
c/o SVERDRUP & PARCEL ENGINEERING COMPANY
915 Olive Street, St. Louis 1, Mo.



ONE OF THE NATION'S LEADING MECHANICAL CONTRACTORS

IS SEEKING

MECHANICAL ESTIMATING ENGINEERS

There are now several openings on our staff for thoroughly experienced mechanical estimating engineers with good backgrounds in plumbing, heating, air conditioning, process piping, etc. These are permanent salaried positions with a progressive company in Miami, Florida. Write full details to

DEPT. ENR BOX 665

Buena Vista Station Miami, Florida

SUPERINTENDENT

Take charge man to handle field operations for fast moving growing New Jersey contractor. Experience necessary in excavation, stone and asphalt paving, and some drainage. Field covers industrial, streets, highways, etc. Send resume and salary requirements to:

P-1488, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

Shoring and Scaffolding SALES ENGINEER

National manufacturer (AaA1) is looking for a Sales Engineer to assist and advise contractors in the use of shoring and scaffolding. Position offers a real opportunity for a Civil Engineer who is experienced in this field and who wants to become a permanent member of an aggressive, growing organization. Compensation commensurate with the job, with additional pension, profit-sharing, and insurance benefits. Give full details of background, experience, earnings and other qualifications as basis for personal interview. Our organization knows of this advertisement and all inquiries will be acknowledged.

P-1437, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

ENGINEER ESTIMATOR

For Atlanta, Georgia area contractor. Permanent position making complete take-offs and bidding heavy general construction such as power plants, papermills, utility work; then handling contracts as Project Engineer. Start immediately, salary open.

P-1481, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

FACTORY REPRESENTATIVE

World's largest manufacturer of trenching machines is expanding force. Opportunity for continued growth. Excellent remuneration and expenses. Requires sales experience such as construction and road equipment, shovels and cranes, materials handling equipment, farm implements, etc. Considerable travel involved and possible relocation. All replies held in strictest confidence. Send detailed resume.

Attention: L. M. Dunn
THE CLEVELAND TRENCHER CO.
20102 St. Clair Avenue • Cleveland 17, Ohio

City of Las Vegas, Nevada has openings for:

SR. CIVIL ENGINEER: $513-619.
Requires university civil engineering graduate with 5 years professional experience and training.

CIVIL ENGINEER: $447-537.
Requiring graduation from college with major work in civil engineering or any equivalent combination of experience and training.

ELECTRICAL ENGINEER: $447-537.
Requires graduation from college with major work in electrical engineering or any equivalent combination of experience and training.

Applications accepted through May 22. Contact Personnel Department, 400 Stewart Street, Las Vegas, Nevada.

When Answering BOX NUMBERS . . .

to expedite the handling of your correspondence and avoid confusion, please do not address a single reply to more than one individual box number. Be sure to address separate replies for each advertisement.

• POSITIONS VACANT
(Continued from page 93)

Assistant City Engineer. Civil Engineer desired by The City of Springfield, Ohio. Salary open, liberal vacation, sick leave, holiday, group insurance and retirement benefits. Must be college graduate or registered engineer. Submit complete application and desired salary to the City Engineer, Springfield, Ohio.

• POSITIONS WANTED

Construction Superintendent—experienced industrial, chemical, commercial. Middle Atlantic States preferred. PW-1410, Engineering News-Record.

Controller—Competent management accountant experienced finance and control multimillion dollar construction contracts. Knowledge costs, budgets, taxes, systems and procedures, all types contracts, corporate organizations and joint ventures. Head Office and field operations. PW-1407, Engineering News-Record.

Resident Engineer or Architect's Superintendent—experienced, competent. PW-1423, Engineering News-Record.

Construction Manager. Proven capability. $15,000.00 minimum. Available immediately. PW-1422, Engineering News-Record.

Purchasing Agent—Thorough knowledge of modern purchasing procedures with experience in heavy manufacturing (including foundry) and heavy construction—including CPFF—Married—No children—will relocate for permanent position. PW-1400, Engineering News-Record.

Structural Engineer—Extensive National Experience. Registered. Desires executive position or partnership. Midwest or western location. PW-1449, Engineering News-Record.

Paving & Materials Engr., BCE, SM, 4 overseas Airfield projects controlling soils, asphalt, concrete, surveying, independent responsibility, managed personnel. PW-1447, Engineering News-Record.

Prestressed Concrete Plant Manager—MSCE —Experienced Engineer capable of designing, building and managing an efficient prestressed concrete plant. PW-1482, Engineering News-Record.

Project Engineer: Location and construction of railways, highways, bridges, tunnels, docks, townsites, etc., in Latin America or south. Fluent Spanish. Technical ability and experience rarely equalled. Highest references. PW-1495, Engineering News-Record.

Supt. or Foreman, General Construction. PW-1521, Engineering News-Record.

Available April: Construction superintendent or resident engineer. 16 years. Experience in commercial, industrial, institutional, mass housing, highways, roads; includes all phases of construction, job management, purchasing, subcontracting, processing of claims, etc. Will relocate anywhere. B.S.C.E. and B.S.M.E. North Lake, Illinois. Call Filmore 4-7030.

Construction Bookkeeper and General office man. open for position. Life experience in Bookkeeping, cost accounting, payroll and other phases. Have had experience in Latin countries which is preferred. Also have const. account code Spanish, English. M. G. Waller—Box 214, Lantana, Fla.

Construction Superintendent B.S.C.E., Hwy. Earthwork, Highways, Flood Control, 15 yrs. exp. bidding, estimating, supervising, E. Eiswirth, Box 48, Clayton, Mo., Pr. 3-3984.

Project manager general superintendent 25 years heavy construction specializing in tunnels shafts underground work. Extensive foreign experience. Will work anywhere. PW-1451, Engineering News-Record.

Construction Supt. General Construction. PW-8896, Engineering News-Record.

8 Engineers and designers available due to completion of industrial expansion project. Varied experience, 3 to 8 years in civil, electrical, instrumentation, piping and structural. Submit your requirements to PW-1541, Engineering News-Record.

Young structural Engineer, 1st Class Degree and 10 yrs. varied experience seeks permanent responsible position with a challenge. PW-1534, Engineering News-Record.

Civil Engineer BSCE, PE, 11 years experience all phases soils and foundations. Know design and construction waterfront structures and process plant facilities. Have experience in supervision and administration. Desire challenging job with future. PW-1546, Engineering News-Record.

Field-office Engineer—layout, supervision computations and drafting. Experienced in Municipal and Heavy Construction. Desires to relocate. P. O. Box 53-296, Miami, Fla.

• POSITIONS WANTED

Contracter's Engineer—graduate CE licensed Heavy Construction and Buildings. Wide experience in estimating, purchasing, field supervision and project management. Bid to completion. PW-1574, Engineering News-Record.

Civil Engineer, BSCE & MSCE, 26, married. Five years varied experience in public works and foreign contract administration(Navy Civil Engineer Corps), structural design, college teaching and soils laboratory testing; desire challenging position with responsibilities and opportunity for growth; location anywhere; available September 59. Resume upon request. PW-1579, Engineering News-Record.

Civil-Management Engineer. BCE, MIE, 3 years diversified design construction experience. Aggressive, mature, conscientious. Seeks management engineering position with heavy responsibilities & strong growth potential. Will relocate. PW-1580, Engineering News-Record.

Project Manager, Proven 20 Year Record heavy construction. U. S. and foreign. PW-1564, Engineering News-Record.

Civil Engineer, 29, Office, Field Experience, General Contractor. PW-1556, Engineering News-Record.

Architectural Field Supervisor, 8 years experience in all branches of construction, including hospitals, schools and institutions. Will relocate for permanent position. Available immediately. PW-1558, Engineering News-Record.

Construction man, 34, Manhattan College P.E., contractors supt. Public work jobs from 7 to 20 million. Also structural design background. Position desired owners or arch. repre. or contractors supt. N.Y.C. area. PW-1569, Engineering News-Record.

• POSITIONS WANTED

Inspection Engineer (Assist. to Res. Eng) returned from 3 years foreign construction. Own equipment includes portable X-Ray machines, Ultrasonics, Magnaflux, Pipe line Isotope cameras etc.—Welding expert. Interested in contract or employment on large construction: refinery, pipe line, hydro, chemical etc. Experienced to do corrosion survey on existing installations. Write: Carl Kukula, 7 Broad St., Flemington, N. J.

Architectural Engineering graduate experienced in design, estimating, and construction. Preferred location outside United States. PW-1553, Engineering News-Record.

Executive heavy construction New York area only, C.E. graduate 9 years varied field office experience, bidding, subcontracting, purchasing, processing claims, lucrative ideas, pushing jobs. PW-1560, Engineering News-Record.

Purchasing Agent—Subcontracting. 8 years experience in all phases of heavy construction, large buildings, etc. Will relocate for permanent position. Available immediately. PW-1552, Engineering News-Record.

Project Engineer, MCE Cornell. 20 years experience research, design, construction sanitary field. PW-1551, Engineering News-Record.

General Construction Superintendent or field engineer. B.S.C.E., 29, Experience in commercial buildings and heavy construction; concrete, masonry, and steel. PW-1537, Engineering News-Record.

Professor, Chief Structural Engr. or Partner. 15 yrs. experience in administration and design of institutional and commercial bldgs., power plants, waterfront structures and heavy foundation works. Ph.D in structures and foundations. Author of technical papers and book. PW-1543, Engineering News-Record.

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Licensed Engineer interested in purchasing all or part of established Engineering and/or Land Surveying business from owner wishing to retire or become less active. BO-1563, Engineering News-Record.

Partner Wanted. To supervise construction of grain drying and storage plants in Central and South America. Capital investment $6,000.00. Give age and experience record in first letter. American Mill Supply Company, P. O. Box 6943, Houston, Texas.

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Job finding stump you? New text explains resumes, letters, interviews, sources, with full examples, $2.00 Job Finder, Birdsboro, Pa.

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Write today, no obligation

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P & H ¾ Crawler Crane Powered by Diesel Engine. Condition Good $8,000.00

Link Belt Truck Crane mounted on GI White Chassis s/n 8132, 30' Boom, New 6 Cyl. Gas Engine $9,500

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NEwtown 9-7777

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493	34' to 35'	T-1A TEES	
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378	41' to 44'	36	34' to 40'
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22 Ton Rear Dumps

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ADVERTISERS IN THIS ISSUE

Aluminum Company of America..... 65
American Vitrified Products Company..... 5
Armco Drainage & Metal Products Inc...48-49

Barber-Greene Co. 13
Bethlehem Steel Co.....60-61
Blaw-Knox Co., Blaw-Knox Equipment Div. 47

J. I. Case Co.....33-36
Cast Iron Pipe Research Association.....42-43
Cement Gun Company..... 103
Clyde Iron Works, Inc..... 56

Detroit Diesel Engine Div.....14-15
Dresser Manufacturing Division..... 9
Richard Dudgeon, Inc..... 57

E. I. du Pont de Nemours & Co. Explosives Dept. 59
Electro Data Division of Burroughs Corporation 29
Elgood Equipment Corp..... 46

Facit, Inc. 40-41
Fairbanks, Morse & Co..... 46
Fenwal, Inc. 12
Fruehauf Trailer Company..... 63

Garrett Corp. 50
Goodall Rubber Co..... 10
Goodyear Tire and Rubber Inc..... 1
Griffin Wellpoint Corp..... 68
Gulf Oil Corp.....70-71

Heltzel Steel Form & Iron Co.....54-55
Hendrix Mfg. Co., Inc..... 72

Irving Subway Grating Co., Inc..... 74

Jenkins Brothers 16

Kern Instrument Co..... 73
Keuffel & Esser Co..... 45
Kinnear Mfg. Co..... 103

LeRoi Div., Westinghouse Air Brake Co.... 52
LeTourneau-Westinghouse Co. 77, 79, 81
Liberty Mutual Insurance Company..... 8
Link Belt Speeder Corp..... 4
Louisville Cement Co..... 18

R. C. Mahon Co..... 80
Master Builders Co.....3rd Cov.
Mayo Tunnel & Mine Equipment..... 46
McGraw-Hill Book Co..... 53
Moretrench Corp. 46

Noble Co. 38
Northwest Engineering Co..... 3

Pittsburgh Des Moines Steel Co.....2nd Cov.

Raymond International, Inc..... 11
Reda Pump Company..... 57
Republic Steel Corporation.....84-85
Rust-Oleum Corporation 87

Servicised Prod., Corp..... 88
Socony Mobil Oil Co., Inc.....6-7
Sylgab Steel & Wire Corp..... 28
Symons Clamp & Mfg. Co..... 2

Texas Co., Asphalt Div.....4th Cov.
Timber Structures 32
Timken Roller Bearing Co..... 75

Umeco Optical Division..... 103
Underpinning & Foundation Co., Inc..... 103
Unit Crane and Shovel Corp..... 69
U. S. Rubber Co..... 20
U. S. Steel Corp.....66-67

Washington Aluminum Company..... 51
West Chemical Prod., Inc..... 89
Williams Brothers 68

Yuba Mfg. Div., Yuba Consol., Ind. Inc... 83

Professional Services.....99-102

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Employment Opportunities..93, 94, 95
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In Lieu of Flowers

IT WAS TYPICAL of Charles E. Trout, who died April 19 at the age of 87, that his death notice in the newspapers should read, "In lieu of flowers, donations may be made to the United Engineering Center, 33 W. 29 St., New York City."

As a vice president of Great Lakes Dredge & Dock Co. until retirement in 1954, and as a life-long participant in civil engineering affairs, Charlie Trout was a man of stature in the profession. The venerable gentleman, who never seemed to age, had been treasurer of the American Society of Civil Engineers since 1941 and, obviously, completion of the planned United Engineering Center was a cause he carried even to his grave. Compliance with this last wish by many who will want to pay their respects to Mr. Trout's memory will hasten the day when his cherished Center project will be a reality.

Recognition and Public Service

EVERY NOW AND THEN an issue develops at the local level affecting the welfare of both the community and the construction industry. For the issue to be resolved to the benefit of both interests, the viewpoint of designers and contractors, as well as that of financiers and developers, must be fairly presented to the public, and voters should be urged to back the proposal most favorable to the general welfare. Too often, in such battles for men's minds, architects and engineers lose by default.

An opportunity is now presented to the large group of architects and engineers in New York City to take a stand on an issue affecting both the city welfare and the construction industry. The city is holding hearings on an amendment to its zoning laws that would completely revise these regulations. The proposed revision was developed by a prominent architect-engineer firm. Real estate developers and city officials, even before the hearings began, managed to gain newspaper headlines and secure publication of numerous stories giving their views on this important issue. Architects and engineers have not been as successful, perhaps because they have not tried hard enough.

Most stories so far feature opinions of those who oppose the amendment: Developers fear loss of rental revenue because the proposed regulations would limit the amount of floor area to a greater extent than the present law. Some city officials oppose the revision because they fear loss of tax revenue since future buildings will be smaller.

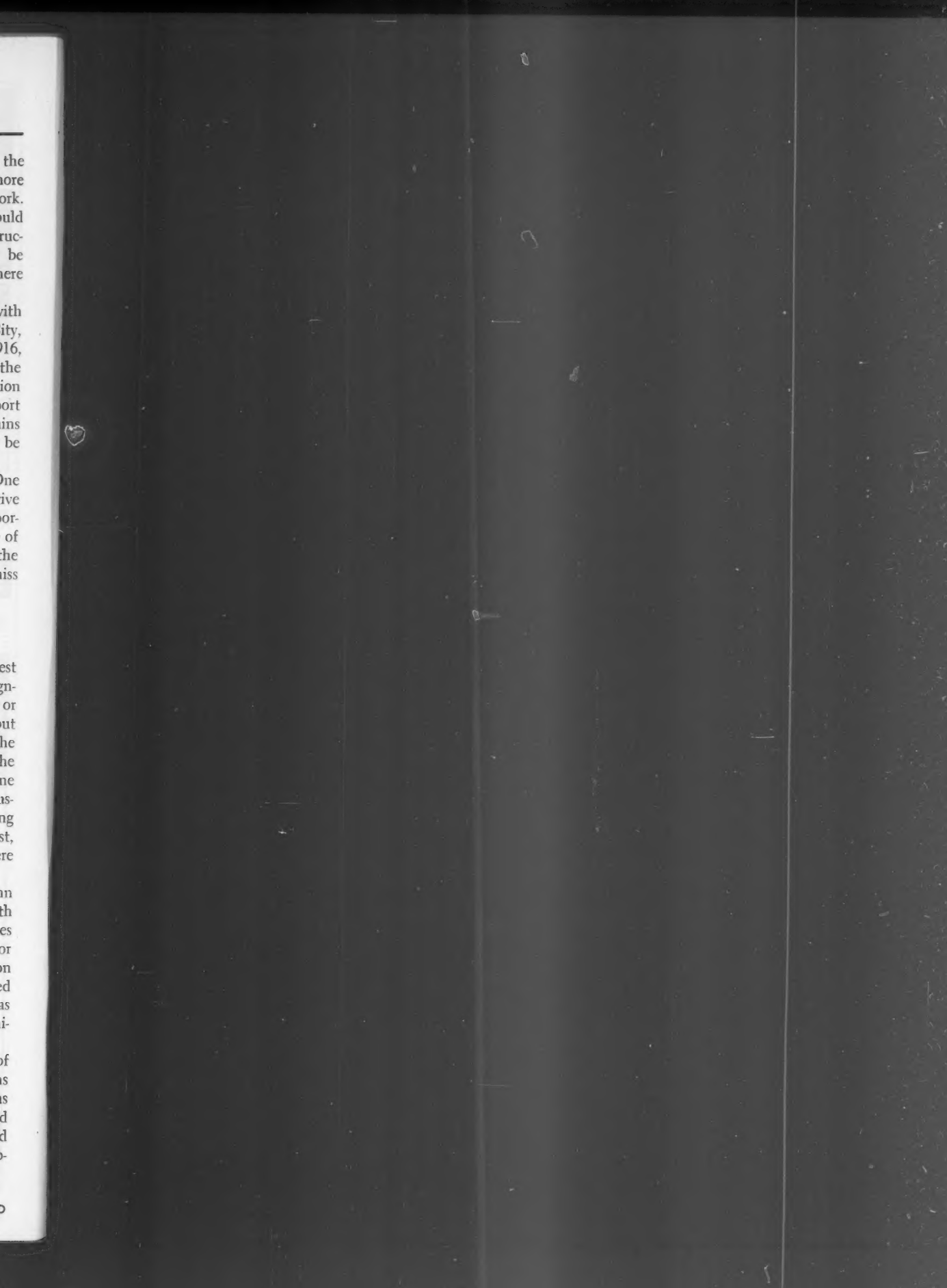
The opposing arguments—those that architects and engineers might be expected to offer—have not been nearly as strongly presented in the newspapers and on radio and TV. A strong case could be made for the proposed zoning amendment on the grounds that the limitations on building bulk would make the city a more pleasant and efficient place in which to live and work. As a result, more businesses and their employees would be attracted to the city. Also, more, not less, construction would result; and more, not less, taxes would be paid. Experience with sound zoning laws everywhere shows these conclusions to be true.

Only a few years ago a proposed zoning revision with the same objectives was defeated in New York City, whose present patched up ordinance dates back to 1916, when it was the first in the U. S. Then, as now, the provisions for less bulky buildings drew the opposition of developers without correspondingly vigorous support from civic-minded architects and engineers. It remains to be seen whether this return engagement will also be lost by default.

Architects and engineers seek public recognition. One way they can achieve this objective is to take an active part in efforts to improve their communities. Opportunities to do this are presented when modification of building codes and zoning regulations would be in the public interest. Architects and engineers should not miss these opportunities for public service.

Making Columns Disappear

GETTING RID OF COLUMNS has been one of the oldest dreams of architects and structural engineers. Design-wise, the long span steel truss and the timber, steel or concrete arch would accomplish the desired results, but customers for such large buildings were few—in the early days only the railroads for their terminals and the cities for their auditoriums. Then came the airplane with its need for large hangars, and a few more customers appeared. Defense industry factories requiring long spans also helped in the column-removal quest, but the inroads made on column-infested buildings were still far from impressive.

Suddenly, however, this slow attrition of the column has speeded up, thanks to the public's enamor with special-shaped roofs. There is the dome in space frames of steel or in thin shell concrete. There are single or double cantilevers, and there are roofs carried by or on cables. And there are roofs in barrel vault and folded plate designs. Finally, materials used are almost as numerous as the roof designs and include timber, aluminum and plastics, as well as steel and concrete.

The fact that engineers developed new skills in roof design and that architects found in them a new means of expression played a part, but it is the owner who has been the dominant factor in establishing the trend toward fewer columns. The moral for engineers and architects is plain: Develop more new things. The public is ready and waiting to adopt them.